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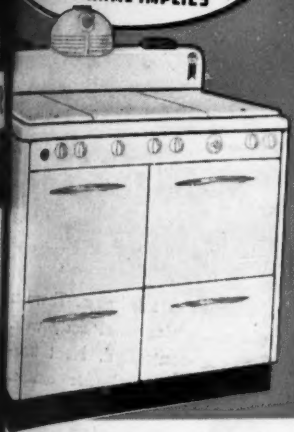

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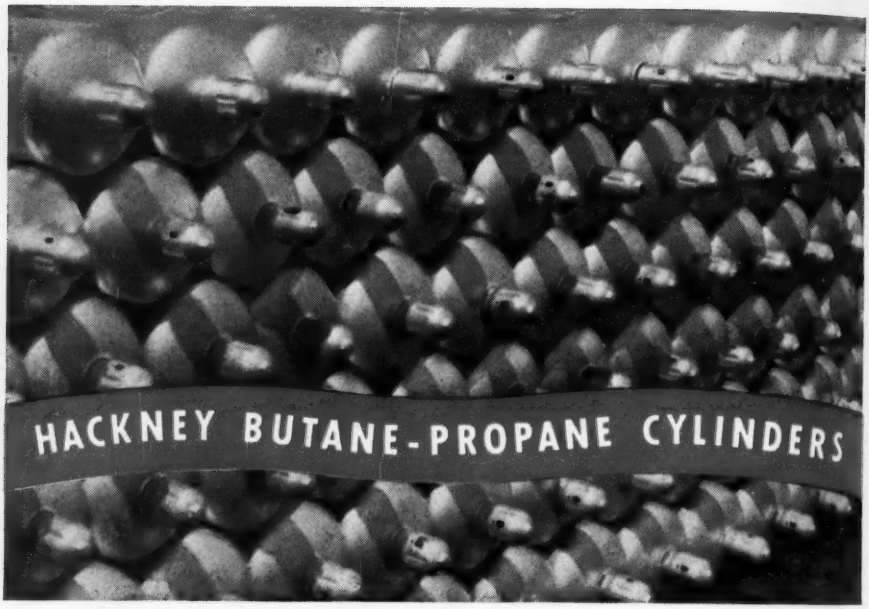

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BUTANE-PROPANE *News*

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Publication Office: **LOS ANGELES, 1709 West Eighth Street, DRexel 4337. *Branches:* NEW YORK, 381 Fourth Ave., MUrray Hill 6-7219; DALLAS, 3645 Haynie Ave., Ph. Justin 8-1764; CLEVELAND, 2232 Adeline St., Lakewood, Cleveland, BOulevard 5711; CHICAGO, 1064 Peoples Gas Bldg., HARrison 6634.**

JAY JENKINS, President and General Manager; **CRAIG ESPY**, Vice President; **JAMES E. JENKINS**, Secretary-Treasurer; **ARTHUR ROHMAN**, Editor; **LYNN C. DENNY**, Managing Editor; **ELLIOTT TAYLOR**, Eastern Editor; **PAUL LADY**, Assistant Editor; **GLENN ROYER**, Cleveland Manager; **W. G. RUSSELL**, Field Representative.

July, 1941. Volume 3. Number 7. BUTANE-PROPANE *News* is published monthly.

Copyright 1941, by Western Business Papers, Inc., at 1709 West Eighth Street, Los Angeles, Calif.

Subscription price: United States, Mexico and Central American countries (in advance), 25 cents the copy, one year for $1.50, three years for $2.50; all other countries, $3.00 per year. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Member Audit Bureau of Circulation; Associated Business Papers, Inc.

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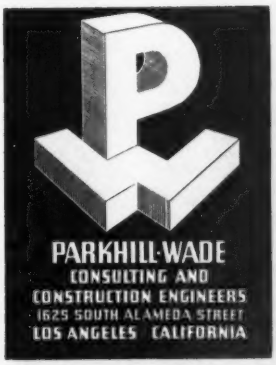

LETTERS

Gentlemen:

I have a problem concerning the rapid reduction of moisture in grain that has just been harvested by combine. Required is the reduction of moisture from about 17% to around 10% before the grain has time to heat in the granary.

Can you give me any information as to where I might procure a burner that would be suitable for sending heat through many feet of pipe? Do you know of any experiments that have been conducted along this line or where I may secure engineering data covering this subject?

J.D.L.

Texas

There is no doubt but what you can adapt LP-Gas to the drying of grain with great success. This same fuel is used for rice drying and in many other similar agricultural applications.

You will find among the advertisers in BUTANE-PROPANE *News a number of firms which make special burners for special purposes and they will be glad to assist you if you will set out your exact problems and needs.—Ed.*

●

Gentlemen:

Have you any condensed specifications on propane and butane—the physical properties, gallonage, B.t.u. content, pounds, etc.?

H.H.P.

New York

Physical properties of liquefied petroleum gases, with table of constants, appear in Handbook Butane-Propane Gases (Revised Second Edition), published by the publishers of BUTANE-PROPANE *News, 1709 W. Eighth St., Los Angeles.*—ED.

●

Gentlemen:

We are interested in obtaining any information which you may be able to give us on converting gasoline engines to the use of butane or propane as a fuel..

We notice that all conversions have been made for use with butane. What is the reason that more conversions have not been made for propane?

J.G.

Michigan

The reason butane is almost universally used in automotive equipment is that at the time when conversions were first made in California butane was low in price and was not used very much for other purposes. It became a "natural" for the automotive industry. Propane will work equally well, but it is true that the tanks which carry propane must be heavier than those for butane because of the additional pressure, and, of course, that is an added expense. It is also true that if you were to buy fuel by the gallon butane would contain a few more B.t.u.'s per gallon than propane, but the difference would not be great if purchased by the pound.—Ed.

●

Gentlemen:

I am interested in equipping my trailer with a butane-burning stove and would like to know if there is any list or directory of the places throughout the different states where refills may be had.

Mrs. M.G.

California

There is no available list such as you seek. However you will find dealers handling butane and propane in most of the small towns throughout the country, except in the more sparsely settled regions of the West. Even in such localities dealers are establishing themselves rapidly. We are sure you will have little difficulty in getting refills as needed, especially in the South and Southwest.—Ed.

●

Gentlemen:

I would like to know what are the prospects of obtaining LP-Gas in the future in view of the defense program? Which do you think will be the most abundant, butane or propane?

P. P.

California

In the February issue of BUTANE-PROPANE *News* (p. 11) appeared a survey of the LP-Gas industry which stated that the present supply of this fuel is 33 times greater than current demands, but war conditions may cause an increasing trend toward the use of propane.—Ed.

●

Gentlemen:

Can you give us any information on milk bottle sterilizing equipment that has a capacity of 100 to 200 bottles?

J.W.A.

Maine

The Malsbury Manufacturing Co., 4437 San Leandro, Oakland, Calif., manufactures equipment of this kind. We suggest you present your problems to that firm.—Ed.

● **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in personal opinions expressed. —Editor.**

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GENERAL PRODUCTS DEPARTMENT

FORT WAYNE INDIANA

WALTER A. NAUMER
Guest Editor for July

A Secure Future

By WALTER A. NAUMER
Manager, Pyrofax Gas Division,
Carbide and Carbon Chemicals Corporation, New York

THE liquefied petroleum gas industry has enjoyed a phenomenal growth. Customer acceptance has been won by an honest sales appeal that gas can do the cooking, heating and refrigeration jobs better. Prospects have become customers and are so deeply convinced of the merits of LP-Gas that they enthusiastically help sell their neighbors. We in the industry must leave no stone unturned to insure that today's customers will also be tomorrow's customers and will be just as willing to endorse our service.

Honesty in dealings with users requires the making of every installation in accordance with the standards of N.B.F.U. Pamphlet No. 58. It is the Bible of the Industry and its first commandment undoubtedly is: "Make every installation conform to safe practices."

That doesn't mean only new installations but also applies to existing ones. Be continually alert to correct installations that do not conform to standard safe practices. If such installations come to our notice, in the interest of the customer and the industry we should call them to the attention of the responsible person. In addition to following all regulations as to storage and installation on the premises of the user, it is important that equal or more rigid precautions be followed relating to bulk storage of gas on the premises of the dealer. There are many other small but necessary things which should be done to safeguard the public interest and the future of our industry.

Show as honest an effort in working for the customer's welfare as in the appeal to him to buy the product. Then there will be little need for state or other regulatory bodies to police the industry. Even more important—customers will continue to praise liquefied petroleum gas service so highly that the growth of our industry will be assured.

Safety Standards Set

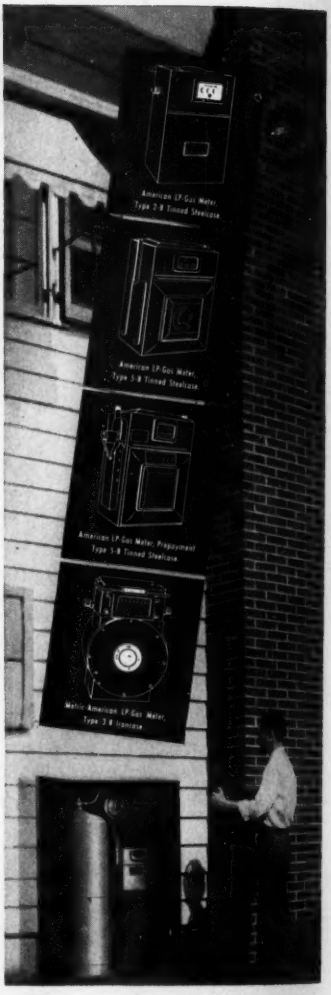
... *and met*

ANOTHER ADVANTAGE OF LP-GAS METERING

● Practical instruments for safely metering all kinds of butane-propane vapors are fortunately available . . . **AMERICAN** Tinned Steelcase and **METRIC-AMERICAN** Ironcase meters of special construction, together with special indexes, were ready as fast as every new market requirement for LP-Gas arose.

American Meter Company instruments meet the strictest accuracy, performance and safety requirements. The millions in service afford assurance of customer confidence.

An Authoritative Guide . . . *The exceptional demand for our new Bulletin LPG-4 is due largely to the guidance it offers in proper selection of the correct types of LP-Gas meters. Copies still may be had upon request.*


American LP-Gas Meter, Type 2-B Tinned Steelcase
American LP-Gas Meter, Type 5-B Tinned Steelcase
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INCORPORATED (ESTABLISHED 1836)

Ad 168

MAINLY BEYOND THE MAINS

METERING MUST COME

In our quiet way we have been weighing the question of metered versus unmetered service of LP-Gas, and we are of growing conviction that metering is destined to become the accepted method of measuring and charging the customer for the gas he consumes.

To put it bluntly, the householder wants some reasonable assurance that he is getting what he pays for and metering offers him the only practical evidence that he can rely on—that of visual proof of the amount of gas consumed.

LP-Gas customers who have had previous experience with either gas or electric utilities have become conditioned to accepting a meter reading as proof of power or fuel consumed; and long years of usage have also convinced them that they have a right to pay for their service after, and not before, it has been utilized.

Conversations with dealers in various parts of the country who have changed their operations over from unmetered to metered service only serve to bear out these contentions. Metering is invariably greeted with enthusiasm by even their most satisfied customers; sales resistance to new installations is lowered; gas consumption per family is often materially increased and complaints about the cost of fuel are reduced.

Dealers experimenting for the first time with metering have often given their customers a choice between metered or weighed delivery service. The choice is nearly 100% for metering.

From the standpoint of the purveyor, there are other aspects to be considered. The equipment cost per customer is probably about the same, since the cost of the meter is offset by the fact that the average number of cylinders on inventory per customer is reduced. The investment in gas, delivered to the premises but not collected for, is perhaps the most important item to many dealers. This investment unquestionably adds to the cost of doing business; but there

More Than 4000 Copies This Issue

are many other cost items justified solely on the grounds of better customer relations that add to the cost of doing business. Such expense must be accepted as inevitable.

The suggestion has been advanced that where propane is being delivered in 100-lb. cylinders, one cent per pound could be added to the price, to offset the additional cost of changing to and maintaining metered service. The practicality of such a charge would depend solely on the competitive situation and the buying habits of a community.

It must always be borne in mind, however, that the public is not interested in internal problems of any industry from which it secures goods or services. The public wants only good service and sound merchandise at a price that it considers reasonable for value received. But invariably the public demands evidence of honest delivery; and in the matter of LP-Gas that evidence can best be supplied through the medium of a meter, simply indexed, and placed where the customer, himself, can read it any time and every day, if he has a mind to.

ENGINE FUEL SALES GAIN

The annual United States Bureau of Mines survey for 1940 on the sales of liquefied petroleum gases shows an even sharper upward trend for the industry than was predicted in estimates appearing in the January and February issues of BUTANE-PROPANE *News*. A 40% gain in sales over 1939 with deliveries increased to 313,456,000 gals. exceeds the most optimistic advance predictions made at the first of the year.

It is also interesting to note that the percentage of LP-Gas going into industrial sales was not as high as had been predicted, and that the biggest single classification increase was in the use for internal combustion engines as indicated by an 81% gain in sales for this purpose in 1940 compared with the previous year.

There is every indication that this type of utilization, which has been confined chiefly to the Pacific Coast and some sections of the Southwest in past years, will gradually extend itself over the whole continent. It is well for the bulk station operators in particular to observe that not only butane, but propane and butane-propane mixtures are all being used as engine fuel. The visionary dream of numerous and accessible service stations being set up along major truck routes to serve the motor vehicle trade now looms as a distinct opportunity of the very near future.

THE BOTTLED GAS MANUAL

Chapter 1. What Is Butane?

PUT on your slippers, light up your favorite pipe, turn on the reading light and settle down in your easy chair for this first of many happy evenings which we shall have together. I shall try to write to you just as I would talk if you were here with me by the fireplace at "Gra-court."

The product with which we are to deal is, largely speaking, propane, one of the several hydrocarbon gases which nature produces.

Propane is the chemical name of one certain combination of hydrogen and carbon that has physical characteristics that make it usable as a gas fuel, even though it is handled, stored and transported as a liquid product.

The chemical name has been used by commerce to designate a material having the essential commercial characteristics of pure propane although it may be a combination of propane and other closely related products.

Commercial propane is obtained from the processing of "wet" gas* from oil and gas wells and from the refining of crude oil in the refineries. The source of supply is directly connected with the production and refining of oil and can be produced in abundant quantities.

The derivatives of petroleum which we are using today are the products of processes which have been going on for ages. Even as

*The term "wet" gas refers to condensible hydrocarbon content rather than to water.

● **C. C. TURNER became identified with the liquefied petroleum gas business in 1930 and has since kept pace with its extraordinary growth. With a gas laboratory of his own and one of the most extensive libraries on propane in the country, Mr. Turner devotes all of his spare time to research, designing machines for special processes using propane, and developing new applications of the fuel. The results he diligently records and some of them have appeared in BUTANE-PROPANE *News* (April, 1940, page 18; May, 1940, page 11; June, 1940, page 15). The technical facts concerning propane, its uses, service and sales, developed out of his experiences and experiments, have been concentrated into a series of articles which he very aptly names "The Bottled Gas Manual" and this series opens with the accompanying installment. Readers should carefully preserve every magazine in this series, for with its completion, owners will have, in essence and fact, a valuable text book covering all phases of the propane industry.—Editor.**

C. C. TURNER

we read this, crudes are being formed for future generations. The leaves of last year's foliage have already taken their initial step into Nature's vast chemical laboratory, and will emerge eons hence as petroleum products. Into oceans which will recede or be rebounded by suddenly changing coast lines, billions of tons of organic matter are annually carried. Here they are deposited in beds, covered with sands, and their first encounter with pressures beyond our imagination is begun.

New sources of supply are being developed while the old ones are depleting. Even if civilization does catch up with Nature, our chemists have provided the means to duplicate natural processes, doing in a few hours what it has required time from antiquity for Nature to do. As long as man remains upon this earth oil products will be provided either from natural sources or synthetic processes.

How Is Propane Produced from Crude Oil?

Organic matter contains both hydrogen and carbon in some combination. Petroleum is rich in both hydrogen and carbon, so we often refer to petroleum products as hydrocarbons, and the gases which come from it as hydrocarbon gases.

If we were to fill a tea kettle with a mixture of alcohol, kerosene, water, and sugar and boil this mixture away, the alcohol would first disappear, then the water, followed by the kerosene. The sugar would be deposited upon the bottom of the kettle as a black, gummy substance, and if the heating process is continued long enough it will become a hard, black scale.

In this imaginary experiment we have roughly duplicated that which goes on in Nature's laboratory or in the modern refinery. Under tremendous heat and pressure, petroleum comes into being. A wide variety, or large "family," of hydrocarbons are formed, ranging from the more or less permanent gases, methane and ethane; through the liquefied petroleum gases, propane, isobutane, and butane, which compounds are gases when not stored under pressure but liquids when confined in pressure vessels or pipes; through the natural gasoline group; the light diesel oils; the lubricating oils; the fuel oils; and finally ending up with the waxes and asphalts.

Methane and ethane are so volatile that it is not ordinarily commercially practical to liquefy them because of the high pressures and low temperatures involved and the weight of metal which would be required to safely hold them under pressure at normal temperatures. (An exception is the recently completed liquefied natural gas plant in Cleveland.) Propane may be held under pressure and in liquid form at normal temperatures by slightly less than one pound of steel to every pound weight of liquid.

Even as there is a series of gases produced in Nature's laboratory, so is there a series from the distillation of crudes in man's refineries. Methane has a blood-sister in methylene, ethane in ethylene, propane in propylene, etc. While these artificially produced "lenes"

have a different atomic arrangement than the "anes" many of their physical properties are the same or similar, and for practical purposes we need not differentiate in our consideration of them. A study of Table I will bear witness of this relationship; hence, what I have to say in these chapters applies to both propane and propylene. Almost all of the commercial propane which we are handling today in this country contains both propane and propylene in varying proportions. For convenience and brevity we will refer to the general product as propane.

Can We Depend Upon a Constant Supply?

We have already noted that petroleum products may be produced synthetically, and that in this synthetic process hydrocarbon gases are produced also. These are in addition to the vast crude oil and wet natural gas supplies known to exist or that may be discovered later.

What Properties of Propane Make It Desirable as a Fuel?

There are seven fundamental properties of propane which make its desirability as a fuel outstanding. Let's consider them.

1. *Propane is Dependable.* It is dependable because it is Nature's own product behaving in accordance with Nature's own laws. Its heat content is constant. Its behavior under like conditions is always the same. Its production and distribution is handled by a many-billion-dollar industry whose efficient and continued functioning is the life-blood of this Nation. It is not dependent upon any one type of transmission, or transportation, its source of supply is not centralized, and it is therefore most readily adaptable to meeting emergency conditions.

2. *Propane is Safe.* From the point of being a cause of fires in dwellings it is interesting to note that electricity through defective wiring is the chief offender. Oil comes next with failure of regulating equipment, leakage, spillage, spontaneous combustion or explosion. Wood is the third offender in the formation of creosote in chimneys and resulting chimney fires. Coal is fourth in overhead pipes, dust or gas explosions, and unextinguished coals on unprotected floors or in wooden ash containers. Gas is last on the list, and is considered by fire preventive organizations as being the safest of fuels.

Considered from the angle of personal safety, propane is on a par with manufactured and natural gas. Its "limits of inflammability" —in other words the ratios in which it will mix with air to form a burning mixture—are narrower than those of most other gaseous fuels. It is non-poisonous and nonlethal excepting when present in such quantities as to almost entirely exclude air from a room, a remote possibility. Detection of it is easy, due to the presence of an odorant which marketers are required to place in it.

3. *Propane is Clean.* A properly designed and adjusted propane burner produces a flame with much the same characteristics as a manufactured or natural gas flame or an alcohol torch. Because of this characteristic, pots and pans remain bright and clean without any deposit upon them.

This property of cleanliness is one greatly appreciated by those in the metal working industries who have do with tempering and heat treating. Many other fuels leave a scale upon the processed metal. This scale is hard and abrasive and is particularly destructive to tool cutting edges. Furthermore, the absence of such a scale makes possible the application of plating coats, enamels or paints with a minimum amount of surface preparation.

In propane, the vaunted cleanliness of electricity as a fuel is met by one which is equally clean, and infinitely more clean than most other fuels depending upon combustion as a source of heat.

4. *Propane is Flexible.* It is flexible in that practically any desired heat may be obtained by the manipulation of a simple gas valve, without any of the "steps" effect of heat produced by other types fuels. This flexibility is important, not only in commercial processes which require accurate control of inputs and temperatures, but in the delicate cooking of foods in our homes and restaurants.

5. *Propane is Speedy.* It is speedy for the reason that all of its heat is immediately available without the necessity of wasting large amounts of heat in raising the temperature of transferring mediums such as stove covers or electric elements. Furthermore, long delays caused by kindling of fires or waiting for vaporizing elements to come up to temperature are not necessary.

6. *Propane is Economical.* While its cost may be more per heat unit than some other competitive fuels its use makes possible methods of heat application unknown to many other fuels. When convenience and cleanliness, lack of maintenance costs and low installation fees are considered, it usually is acknowledged to be as economical as any other fuel.

7. *Propane is Ultra-Modern.* While the owner of a modern electric range likes to think of it as the very latest device for cooking, electricity existed longer ago than the beginning of the ages required to produce propane by natural processes, but man had not learned how to handle it. Not only does electricity antedate the creation of propane but the electric range pre-dates the propane range, as well. In spite of this fact, at the present rate of increase there will soon be as many propane ranges as electric ranges in use (and counting all gas ranges there are more than 5½ times as many as electric ranges in use)—a fact which bears witness to the progressiveness of modern housewives.

Propane, The Modern Genie

In propane we have a fuel surrounded with some little mysticism in that most people do not yet understand it, and that it is able to accomplish the unbelievable under guidance in modern manufacturing methods. In addition to the essential domestic applications, it is used for many agricultural, industrial, commercial and automotive operations. It has extended its field of usefulness to such unusual applications as the treatment of muscular diseases in the hospital, and probably even the shoes you wear were fabricated more easily and less expensively because of its use. Those of us who have attempted to follow it in its accomplishments have long since

TABLE 1. PROPERTIES OF PROPANE AND PROPYLENE

Characteristics	*Propane*	*Propylene*	
Chemical formula	C_3H_8 $CH_3.CH_2.CH_3$	$H_2C=CHCH_3$	(1)
Molecular Weight	44.0624	42.046	(1)
Composition, weight per cent			
Hydrogen	18.2977	14.38	
Carbon	81.7023	85.62	
Normal state	Gas	Gas	
Normal boiling point, degrees Fahrenheit	−48.1	−54	(1)
Normal melting point, degrees Fahrenheit	−309.8	−301	(1)
Specific gravity			
(Air=1) (as a gas)	1.5206	1.479	(1)
(Water=1) (As a liquid)	0.5089	0.522	(1)
A.P.I. gravity of liquid at 60°F.	147.1	147.6	
Critical Temperature, degrees F.	206.6	198.7	(1)
Critical pressure, lbs./sq. in. Absolute	648.1	666	(1)
Specific heat, gas, B.t.u./lb./°F.			
Constant pressure	0.473	0.371	(6)
Constant volume	0.411	0.324	(6)
Ratio of specific heats	1.15	1.14 plus	
Latent heat of vaporization at normal point			
B.t.u. per lb.	192.6	189	
B.t.u. per gal.	816.3	958	
Cu. ft. of vapor per lb. of liquid—at 60° F. and 30 inches mercury	8.588	8.84	
Cu. ft. of vapor per gal. of liquid—at 60° F. and 30 inches mercury	36.398	38.5	
Lbs. per gal. of liquid at 60° F.	4.2383	4.35	
B.t.u. per cu. ft. vapor at 60° F. 30 inches mercury	2519	2376	
B.tu. per lb.	21633	21000	
B.t.u. per gal.	91686	88700	
Limits of inflammability — per cent gas in air			
Lower limit	2.3	2.6	
Upper limit	9.5	7.5	
Maximum Rate of Flame Propagation—in gas-air mixture			
Ft. per second	2.69	3.313608	
Per cent of gas	4.71	5.1	

Note: The majority of data given above is taken from values given in "Handbook, Butane-Propane Gases, Revised, Second Edition."

ceased trying, and we stand by in amazement, asking, "What next?"

We're not going into all of its accomplishments, for that would require volumes. We shall merely consider its basic functioning, leaving to our imagination the new feats which a young and progressive industry is daily attaining.

Shall we now ask ourselves a few questions to see what we have learned in this first evening together? Write out your answers, then turn to page 108 and see how they agree with the ones to be found there.

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QUESTIONS ON CHAPTER I.

1. What is propane?

2. What are the three important gases produced in Nature's laboratory that are of interest to the LP-Gas industry?

3. What are the so-called "blood sisters" of the these gases?

4. For what two reasons can we depend upon a constant supply of propane?

5. What seven properties of propane make it desirable as a fuel?

6. How does propane compare with manufactured and natural gas from a safety angle?

7. Give two reasons why propane is an ideal fuel for the processing of metals.

8. Give two reasons why propane is speedier than most other fuels.

9. What characteristic of propane combustion makes it safer to use than most other fuels?

10. Give in the order of their responsibility for fires the classification of five fuels.

Definitions of some of the terms used in the text and Table 1:

Wet Gas is untreated gas from wells containing natural gas, LP-Gas, and natural gasoline.

Molecular Weight is a fundamental physical property of a substance, being the sum of the basic or atomic weights of the various elements of which the substance is composed. Molecular weight can be considered as an index number indicating the relative weight and complexity of a substance.

Critical Temperature is that temperature above which a gas cannot be liquefied by pressure alone. The pressure at which a substance may be liquefied at the critical temperature is the Critical Pressure.

Specific Heat of a gas is the number of B.t.u.'s required to raise one pound of the gas one degree Fahrenheit.

Latent Heat of Vaporization of a substance is the quantity of heat required to change it from liquid to vapor, without raising its temperature.

The B.t.u. or British Thermal Unit, is the amount of heat required to raise one pound of water one degree Fahrenheit, at 60°.

Combustible gases are inflammable, i.e., will ignite and conduct flame and burn throughout their volume, only when mixed with air in a relatively narrow range of proportion. This range is called the *Limit of Inflammability.* At the intermediate valve of the limit the combustion takes place most rapidly (with explosive violance if the gas-air mixture is confined) and the rate at which flame will travel through the mixture at this intermediate valve of the limit is termed the *Maximum Rate of Flame Propagation.*

(Chapter 2 of "The Bottled Gas Manual" will appear in the August issue of BUTANE-PROPANE *News.)*

Streamline Salesmanship

By WARD TALCOTT
President, The Handigas Company of Ohio, Lebanon, Ohio

THE "office of production management" has created at least one problem for all businesses depending on the services of specialty salesmen. Good specialty salesmen, never exactly plentiful, are now really hard to get and harder to hold. Here in southwestern Ohio the problem is especially acute. Lebanon is located between two key spots in the "arsenal of democracy," Cincinnati and Dayton. Everything from aircraft assemblies through machine guns and searchlight reflectors to wagon wheels is being made in this area for our national defense.

WARD TALCOTT

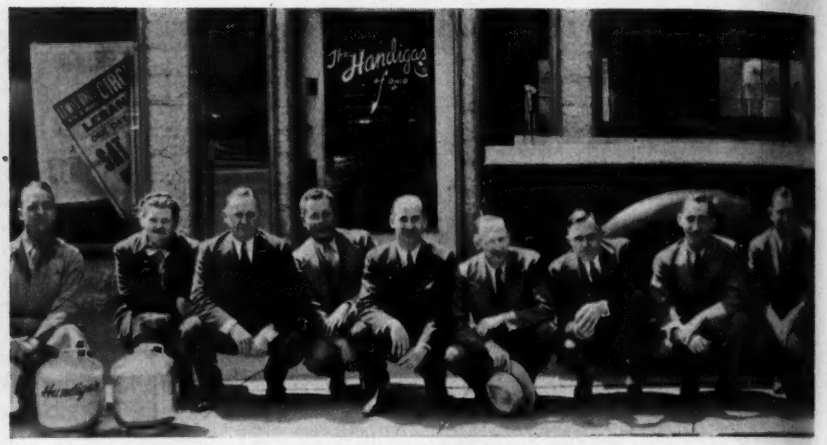
The demand for men, skilled or unskilled, is fairly voracious. It matters little whether a man possesses a particular trade or skill for the government has set-up intensive vocational training courses which enable the unskilled to quickly acquire the necessary ability to manipulate one certain machine or to take places on assembly lines. Old Man Mars' greedy hand is now gathering in what used to be salesmen timber and shoving it into the rapacious maw of our defense effort. To all of that we say, "Amen."

But we see where we can take a worthy place in the defense program by providing a gas service to the hundreds of "defense families" in this section needing satisfactory housing. Scores of such families, due to lack of housing in the metropolitan zones, are building small homes beyond the utility gas lines. Many, in fact most of them, are unaware of LP-Gas service. Or, if knowing of the existence of such service, they are misinformed about it, particularly its cost. Obviously, salesmen are needed to carry on our effort in what we conceive to be our niche in the defense effort.

The only way we have discovered to get and keep salesmen in the face of this industrial competition is to be able to prove quickly to the new salesman that he can make more money with us than he can in such plants. We impress the new salesman with the fact that he will have to work just as hard and with as little lost motion as though he were on one of the assembly lines. He must realize every minute, every word, every motion counts. He must streamline his effort.

We teach the salesman that there are five time-and labor-saving "motions" on our sales assembly line. They are:

Motion 1—Make the prospect "listen" to you.



On these facing pages is the sales force of the Handigas Co. of Ohio, gathered to review the "five labor-saving motions" for "organization streamline salesmanship."

Motion 2—Make the prospect "want" the benefits of gas service.

Motion 3—Make the prospect want "Handigas" service.

Motion 4—Make the prospect express a "price preference".

Motion 5—Commit the prospect to this being the "time"—*now*.

Tests Made to Check Up

Each of these "motions" must be made and they must be made in exact order. Also, at the conclusion of each "motion" what has been done must be inspected or tested. If the salesman worked on firing pin assemblies for machine guns the result of his work would be tested and, if rejected, he would have to do the work over again. So we give him the tests or qualifying questions, to test his own work. If it fails of "inspection" then he must go back and start the "motion" again.

We teach him that unless he can quickly create a "sales situation" when he knocks at the door of the suspect he will be better off to go on to another door—perhaps to return later. We don't believe a sale can be "assembled" correctly at the door of the home; it has to be done at the "bench," which is in the living room. Hence, when we say, "Make the prospect listen to you," we mean he must get *into* the home. He must there set the stage. If he is unable to do this, he must forego the other "motions" and go on to another prospect. So much for Motion 1.

Motion 2. "Make the prospect want the benefits of gas service," is used only to present the advantages of gas cookery and hot water service. Until the salesman causes the prospect to want gas service, any kind of gas service just so long as it is gas, he is not ready to

go on with his "assembly." He discusses modern cookery, modern gas ranges and hot water heaters, modern home making, and health and hygiene. He answers questions; he asks questions; he "tests;" he "inspects."

Motion 3. "Make the prospect want 'handigas' service," is not made until the prospect has committed himself to wanting a gas service. Here the salesman talks about our company, its background and its policies. Obviously, the prospect must have confidence in us or he won't buy. The jigs and tools used by the salesman in this "motion" are a group of testimonial letters and pictures of installations.

During Motion 4 the salesman clearly explains the different types of service we have as to price and also quotes prices on the range and water heater the prospect has indicated will adequately serve the family. He definitely causes the prospect to express a "price preference." The "test" writing up the order, follows without hesitation.

With each of the first four "motions" completed the sale is ready for final assembly. Motion 5, "Committing the prospect to this being the time;" the test being the name on the dotted line.

There Are Many Good Prospects

We train our salesmen to go through each "motion" thoroughly, stressing that in "sales assembly" work haste can make waste. However, he is taught to not take too much time on inferior material. There are too many good prospects today to waste good manpower and and time. This points up the importance of the "test" we have developed, for they do test the prospect as well as the salesman.

We find it takes from two to three weeks for the new salesman to master our company pattern. After that, it is a matter of close supervision. Our salesmen like the plan and they are staying with us.

Commercial Cooking—A Rich Sales Promotion Field

By E. J. SHERMIRE
Sales Manager, Hotel Equipment Division,
Detroit-Michigan Stove Company

I believe that every manufacturer of commercial cooking equipment is becoming increasingly aware of the splendid selling job that is being done on these appliances by the LP-Gas industry. I am also sure that those in the industry who have worked this phase of their business have found commercial sales very profitable and justifying every effort put into the endeavor.

E. J. SHERMIRE

As I see the picture of this industry, a market has already been established—yes, a large market. Just consider the fact that in 1940 sales of ranges for use with LP-Gas represented 13.7% of the total gas stoves sold. This is a remarkable showing for the comparatively few years this branch of the gas industry has been merchandising its products.

With the potential market established, then, there are two steps which we must take if we are to capitalize effectively upon the opportunity that lies ahead of us: First, we must have a good general picture of the uses of our fuel. Second, we must get across to our customers the story of gas usage—what gas will do that competetive fuels fail to do. Since almost everyone in the industry has a good general picture of gas and its many uses, we can most profitably consider the second point, that of getting the story of gas usage across to the consumer. Here are five outstanding features to remember, which, when properly presented, seldom fail to make your prospects gas minded:

1. No fuel is as quick as gas. Gas is always ready the instant you need heat, and it produces its maximum amount of heat the instant it is lighted.

2. There is no fuel more flexible than gas. Gas affords an unlimited variety of flame sizes for all heating needs, from a small tiny simmer flame to a large flame of intense heat, by merely turning the handle which controls the gas valve.

3. Gas is clean. When gas burns, it is completely consumed. You store it for the customer and deliver it in neat packages, hook it to the gas line, without dirt, mess, or inconvenience to the user.

4. Gas is economical. At the

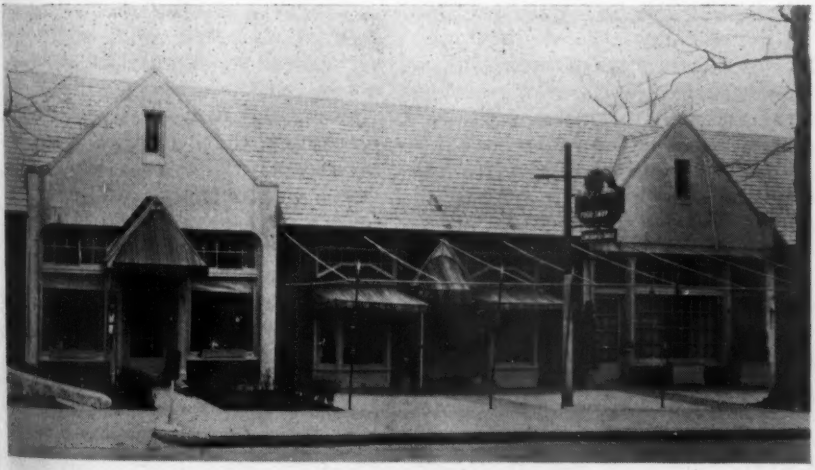
present prices in most areas LP-Gas is moderate in cost to the consumer. The precision with which gas heat can be controlled affords wide-spread savings in operation.

5. Last but not least, no fuel is more dependable than gas. Gas never fails. Day and night, it is available in any quantity for your customers' needs.

These five important advantages are well known to us as gas men, but they can never be repeated too often to our customers. We should memorize these important points until we can say them in our sleep: Gas is 1, quick; 2, flexible; 3, clean; 4, economical; 5, dependable. But now we come to the most likely activity in the retail dealers' field—corraling the commercial cooking equipment load. Many have already made this the most lucrative department in their operations. It is the load that leads most directly to volume sales. The commercial gas equipment load is waiting for us; it only remains for us to do the promotional work necessary to get more of this business.

It is impossible, of course, for every manufacturer to cover every bit of every dealer's territory thoroughly. If each one were to triple his sales force, I believe that even then it would be possible to touch only the high spots. The field is well manned with salesmen that have been trained as kitchen equipment engineers, and they will work with the dealers at any time. There is also good promotional literature.

The manufacturers spend thousands of dollars annually promoting the sale of gas just to realize the profit from the sale of the appliances. But the gas distributors who utilize the manufacturers' material get a profit on the appliance sales and they also continue to realize



The Little Red Hen Tea Room, Pawtucket, R. I., where Garland propane commercial ranges are used exclusively.

a profit on the sale of the gas long after the cost of the appliance has been forgotten. I strongly urge every LP-Gas dealer or distributor as part of his promotional work to take full advantage of manufacturers' representatives' services and time in a constructive way.

Restaurant Business Is Growing

The restaurant market is tremendous. The number of restaurants in business is increasing every year. According to a recent survey made by a national magazine, in 1925, there were 98,000 restaurants in business. Five years later, in 1930, there were 134,000 restaurants. In 1935, another five years, there were 150,000 restaurants. This amount was increased last year by another 20,000 restaurants going into business, making the total at the close of 1940 come to 170,000. This survey also discloses the fact that of these 170,000 restaurants there are but 755 in the country that do $700 per day or more in gross receipts; and 55,810 do only $16 per day or less in receipts. The remaining 113,000 restaurants have an income per day from $16 up to $700 and are the mass market for our products. In the high bracket, the 755 restaurants earn 13% of the restaurant industry's income, and the 55,810 in the low bracket earn only 6% of this income. That's pretty thin picking, isn't it?

If you can show any one of these small restaurants or any restaurant in the mass or middle class bracket—and these number 169,244—how to step up their daily earnings, you land a friend and customer. You have to show them how to make more money—not only how to save more money.

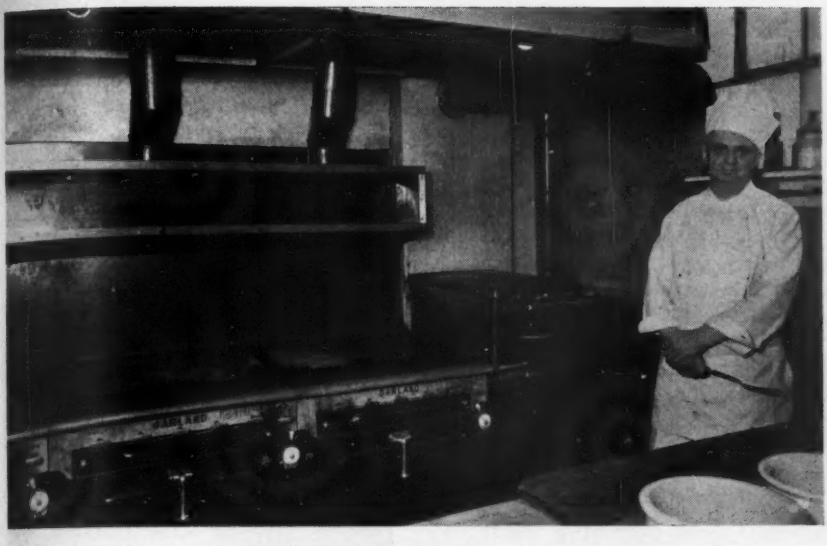
A kitchen modernization plan is one that interests every restaurant operator—large or small—if it can be demonstrated to him that it will not only be a money saver, but a money maker as well.

Many restaurants operating today are just so much kitchen equipment thrown together, a few tables and chairs in the front end or dining room, and a sign "CAFE" painted on the window. These places are the 55,810 joints that pull down the percentage of profit. Their operating costs are high.

The most successful restaurants are the quick service or short order variety, and those often called "specialty restaurants." By such restaurants I mean places that specialize in steaks or fish, or are widely known for their pastry, or even for their coffee. These are the leaders of 1941. The trend of the restaurant business today is to this type of service, so we might ask: "Where do we come into this picture?"

Every restaurateur will very readily admit that the heart of his kitchen is the stove. The stove, being your business and my business, gives us the look-in to present a modernization plan at the beginning by strengthening or correcting the pulse of the business.

(1) Savings: Modern models of commercial ranges effect definite savings. They are engineered for the purpose of getting the most heat from a given quantity of fuel and then utilizing that heat to the greatest advantage in the appliance. Insulation and reliable oven heat



Kitchen view of the Little Red Hen Tea Room, where propane-burning ranges have done the cooking for two years.

control effect savings, and now a simmer burner on a heavy duty appliance is available. This burner is really two burners in one, as the small center simmering section may be used either alone or with the outer flame. Countless variations of heat intensity are instantly available, from just keep-warm-temperature to extremely high heat. Great fuel savings are made by bringing foods to a boil with a full flame then continuing the cooking with only the small or simmer flame. These burners are non-clogging, made of cast iron, not complicated to remove for easy cleaning. Much money has been spent in the domestic field, educating the housewife to do waterless cooking. A few years ago, simmer burners were introduced to the housewives, and since that time the demand for this type of burner has increased rapidly every year. We believe the same acceptance will be accorded this type of burner by the users of commercial cooking equipment. But as we have already seen, we must be able to show a customer something besides savings, which leads us to our second step in selling modern commercial LP-Gas equipment.

(2) Additional Earnings: By having modern gas appliances that are insulated, thermostatically controlled, and fitted with simmer burners, Mr. Restaurateur can do low temperature roasting and baking and waterless top cooking. Independent tests made by nationally known dietitians have proven that food shrinkage has been cut from 30 to 50%! Figuring it in small numbers, it means that five to 10

additional portions are gained from the same amount of food now required to serve a hundred portions. In the eyes of the chef, this is not only a saving; this is increased volume by lowering the cost of meals served. It means additional earnings.

These are only two of the many features offered in modernizing a kitchen. Other important features include better working conditions and cooler, cleaner kitchens. Modern gas equipment cuts down kitchen temperatures to a minimum. Where restaurants have installed air-conditioning units, new ranges are essential for reducing kitchen heat to cut down the operating cost of the air-conditioning plant.

Just recently we had this letter from a large drug chain after they had replaced oil-burning ranges with new gas equipment:

> "Since installing the new battery of your ranges, we have been able to cut down the running time of our refrigeration system. The first 24 hours after the installation had been made, we did not reset the temperature gages on the refrigerators and the food in the boxes froze stiff."

This is just one of the many important savings to the restaurateur that we, as gas men, must be careful to point out if we are to get our message across to prospective users. There are many other instances that could be cited. Every merchandiser adds to his own sales talk by remembering and drawing upon the experiences that new problems and installations yield.

It is important that we stress the advisability of the purchaser buying new equipment to use in a new LP-Gas installation. LP-Gas burning appliances are made to their own specifications, and fabricated in accordance with them for the express purpose of burning efficiently this type of fuel. When you let your customer use with your gas an appliance that is not approved by the American Gas Association for the use of liquefied petroleum gases, you are in constant danger of losing a customer, as the appliance will not operate satisfactorily in the oven or through the top burners. Excessive gas bills lead to dissatisfied customers.

The commercial gas load can and should be made the most important part of the LP-Gas industry. Besides the 170,000 restaurants in business now, there are hospitals, asylums, sanitariums, schools, colleges, county and state homes, country clubs, bus stations, and airports—all good prospects. No one industry has the public interest today as much as aviation. It stands for romance, efficiency, speed, modernity. It stands for the future. So when one of our country's outstanding airlines chooses gas for cooking, what better star could we hitch our wagon to?

To get the point across—Gas is best. Gas is modern. We have the fuel and we have the efficient equipment to go with it. All that is needed is additional sales effort. And my opinion is that during 1941 a more aggressive promotion of commercial gas equipment will go far toward making it another banner year for dealers and distributors of LP-Gas, and for the makers of the equipment that they sell.

Mrs. America Prefers Gas!

By ELLSWORTH L. MILLS

Vice President, The Bastian-Blessing Co., Chicago

COMPETITION is a good thing when it is progressive rather than possessive. Progressive competition changed the broom into the vacuum cleaner. The old oxcart into the automobile. The jungle drum into radio. There are types of lunatic competition, based not upon progress, but upon the attempt to unfairly hog it all, which cannot be defended, and there are certain basic answers to needs that have little or no competition because they do the job better and at lower cost. Water (I mean pure H_2O) has no competition. Nor has tobacco. Likewise, liquefied petroleum gases have no competition within the purposes they serve, except for the degrees of quality and service reflected in brand identity.

E. L. MILLS

Competition? There is None!

Some say electricity is a competitor of liquefied petroleum gases. Based upon understanding the separate excellencies for the purposes they serve, this is tommyrot. Naturally, you can't run a radio on LP-Gas. On the other hand, you cannot run a kitchen range with anywhere near the degree of LP-Gas efficiency by electricity. Surely, there are those who will attempt to make a housewife believe it possible, but the homemaker and particularly the farmwife, is too smart to be fooled much. There are those within the LP-Gas industry who are bothered about the extension of rural electrification when they should be thanking God about it—for it has advanced, and will continue to advance, the demand for LP-Gas for the particular services it more excellently renders. Let us ignore electrical competition. There is none.

Electricity can do many jobs better, such as running a washing machine, or lighting a home, or operating a radio, as mentioned. But electricity cannot compete with LP-Gas, all facts known, as a better answer to cooking, refrigeration or water heating. The electrical industries, knowing they can do many things superlatively, attempt the erroneous conclusion that Mrs. America prefers to do everything electrically. This is certainly not borne out by facts. Mrs. America bought 1,742,500 gas ranges in 1940, compared with 404,239 electric ranges. The electric range industry has been in existence since 1904, and backed by heavy promotion, has succeeded in 36 years in getting 2,865,000 electric ranges in

use. The LP-Gas industry, with a market potentially one-third that of electricity and getting started in 1928, without having any promotion from the industry standpoint, has achieved 1,125,000 installations in twelve years—or 40% as many sales in a little more than a one-third market in 24 years less time. The LP-Gas market is now 12% saturated compared to a 11.2% saturation in the electric range market. Any way you look at the facts, the conclusion is supported that Mrs. America prefers to cook with gas.

Magazine Makes Rural Survey

In the spring of 1940, *Country Gentleman* magazine surveyed 43,000 homes in 27 states on R.E.A. extension to find out what appliances had been bought. These customers averaged 13½ months of service. The findings: radio, 87.5%; electric irons, 84.1%; washing machines, 55.3%; refrigerators, 31.6%; hot water service, 15.3%; electric ranges, 4.2%. This study definitely indicates far less favor for electricity among such appliances as can be more efficiently and economically fueled by LP-Gas.

Whatever the cause, farm homes fell in number in the last census. It is estimated that 30% of the present 6,050,000 farm homes are electrified. On Jan. 1, 1941, 41% of those valued at $500 or more were electrified. The average cost per kilowatt hour for the average farm home was 4.41 cents, a decrease only of 2% from 1938 figures. About 1,000,000 farm homes have been electrified since 1935. Of these, 600,000 have been connected to privately owned distribution systems, and the remainder on municipal hook-ups, and rural co-operatives financed by R. E. A. Complete farm electrification costs approximately $1,000. Very few farmers can afford complete electrification initially. Within six months after first receiving electrical service, the farmer spends about $100 for wiring installations and $200 for appliances. The important point is that extension of electricity starts a modernization interest in the housewife's mind. Since there is nothing more vital than cooking to farm home life, outside of radio and washing and ironing, her enlivened modernization consciousness focuses strongly on new cooking facilities. On her shopping trips in town she sees new gas ranges, finds them superior. She learns that an LP-Gas cooking set-up in her home will usually cost less than electricity. She knows the superiorities of flame as a fuel for cooking, because she has always used it in one way or another. So she confidently arranges for an LP-Gas installation—and the force that encouraged it has often been the R. E. A. extension which activated her modernization interest.

Electric Extensions Are Costly

It costs approximately $1,000 per mile to extend electric lines and generally this is not done until three hook-ups have been contracted. Obviously, this means a lot of delay, while LP-Gas service can be installed immediately without having to wait for anyone else. Any study of the farm situation must naturally include the rural homes

of the Southern areas. It will be years before they can come anywhere near obtaining complete electric service. But LP-Gas installation costs are so low that it will undoubtedly be the instrument to enliven modernization in those areas. Certain it is that sales are booming in the South, testimony to the economic advantage of LP-Gas.

The overall home market clearly reflects the greater favor of the public for gas service. There are 17,500,000 homes piped for gas, and there are in use 16,500,000 gas ranges (including those for LP-Gas), while there are 25,586,600 homes with electric service and only 2,865,000 electric ranges in use. A survey among 40,000 families in 1935 for the purpose of measuring their replacement desire relative to both fuels indicated an urban favor for gas of 82%; rural, 93%; median, 85%.*

The most sensible approach to market measurement is to use the dwelling unit estimate of the government census as a base—37,500,000 dwelling units that need both electricity and gas for the separate purposes in which they are each superior. Based upon the foregoing buying preferences, this market comparison is logical from the undeveloped sales standpoint; 37,500,000 dwelling units minus 25,500,000 existing electric services, times 15% electric cooking preference, provides an electric range potential of 1,800,000. From the gas angle, 37,500,000 minus 17,500,000 homes now piped for gas, times a median preference of 85%, provides a potential of 17,000,000 gas ranges, or a ratio of better than 9-1 in favor of gas. From the strictly LP-Gas standpoint in rural areas away from the gas mains there appears better than a 20-1 opportunity among the 5,000,000 farm homes above the $500 class. It is interesting to know that electric range saturation rurally is less than 4%, while for LP-Gas it is 12%, based upon a 50% saturation of the 20,000,000 dwelling units now unserved by gas. The latter is therefore at the threshold of expansion, while the former is not. And that will make profitable a lot of specialized appliance selling, for sales resistances, after a threshold of expansion (10%) has been reached is usually one-third of what it was during the pioneering period.

Erroneously, it is sometimes thought that the government favors electricity because of its activities in making use of water power. Such power produced becomes more profitable as it is directly transmitted to quantity users without sideline piping burdens. It therefore favors wholesale electric power selling. I have before mentioned a fact, that the industry can keep constantly in mind: The economics indicate that nothing electrical can

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*This median is based upon the fact that of 30,000,000 families in the United States, 5,000,000 live in farm homes above $500 in value. The ratio between urban and rural families is approximately 6—1 for purposes of market deduction. Thus to get median balance, this formula has been employed: 82% (urban preference for gas) times 5 (net urban population ratio) equals 410 plus 93% (rural preference) X1 (rural population ratio) equals 93, plus 410 or 503 divided by six produces a median percentage of 84 plus 1 per cent allowance for research variables in interpretation, establishes the fairly trustworthy median of 85 per cent, as based upon the mentioned survey among 40,000 homemakers.

equal the economy of LP-Gas from the farm home standpoint for cooking, refrigeration or water heating. Installation costs are usually less than electricity. Equipment costs are lower. Service and maintenance is simpler. Effectiveness of operation is greater. Value and economy of use are higher.

Nothing is more vital to defense than agriculture. No socialization program can neglect the further enrichment of farm life, and particularly in the ways that LP-Gas performs better. LP-Gas requires less vital metals. LP-Gas supplies a greater urge for happier living, and thereby, for more farm production.

Naturally, the consumer rules in every market today. Of course, as a budding new industry, there are some aspects in which LP-Gas might be considered as a "sellers' " market. But it is distinctly a "buyers' " market to any farmwife, and it thus has her favor because it provides a better service at a lower cost. The idea of "do it electrically" is a lower buying resistance in the farmwife's mind. And she tends to establish her social dominance through ownership of home appliances of the LP-Gas type as contrasted with ostentation, to a greater degree than her city cousin.

There are four prime requisites for making the most of this great opportunity which the LP-Gas market offers at this time:

First, be strong and unwavering in the belief that you are rendering a superior service which the homemaker will most certainly prefer when you get the facts clearly before her.

Second, try in every sound way to improve your persuasive artistry in describing the benefits of LP-Gas.

Third, recognize the public obligation you have as a leader of the happier order of living which LP-Gas makes possible.

Fourth, quit worrying about electrical competition. There is none!

The 15,000-gal. bulk storage plant of the Badger Gas Products Co., Platteville, Wis. Officials of this company include Geo. H. Helmer, president, Donald Pothour, chief engineer, and Harris Helmer, sales manager.

Bottled Gas Marketing

3. Establishing Price Schedules And Dispensing Our Products

SO far we have considered this bottled gas business of ours only on a break-even basis. We aren't in business for the fun of it; therefore, we cannot afford to reduce our high price bracket in accordance with a break-even schedule.

We must first establish our top bracket price, and that must be competitive. Our basic load is domestic cooking, and the service which we render is only approached by the electrical industry, so our retail schedule should be on the basis of prevailing electric rates.

The basic electric load is lighting. Next comes the radio, vacuum cleaner, iron, and miscellaneous, small household appliances. Third on the list comes the electric refrigerator. Fourth is the electric range. Fifth, electric water heater.

Electric rates are usually set up so that the first three classifications of service fall within their upper rate brackets. Occasionally the large domestic user gets a taste of the lower brackets without resorting to electric cooking and water heating, but this is seldom. The fact remains that the electric boys have so cleverly contrived their schedules that they can with some degree of truth say, "Cooking and water heating fall within our lower brackets."

● **This is the third and last of a series of three articles by C. C. Turner, of Portland, Me., in which the bottled gas business is considered from the angle of equipment investment rather than from a merchandising view. The first one, entitled "When Can a Dealer Afford to Make Free Installation?" appeared in the May issue of BUTANE-PROPANE *News* (pages 11-14), and the second on "The Effect of Installation Charges on Retail Prices" was published last month (pages 15-19). In concluding the series the author states that "The purpose of these three articles has been two-fold.. One has been to bring rhyme and reason into our method of establishing price schedules. The other has been to bring out the necessity of getting more than the cooking load if we are to be successful in this business. We can muddle along like children building block houses, or we can build a substantial dwelling with bricks and mortar. If the cooking and water heating load is essential to our electric competitors it is essential to us as well." We are confident that these articles will help dealers to establish themselves on sound economic principles.—Editor.**

Ours, then, is the problem of starting our rates where the electric companies leave off; otherwise, we must sell our service on the basis of its advantages. It is true that we have speed, flexibility, dependability, safety, cleanliness

and ultra-modernism to a degree not possessed by other fuels, but these things mean nothing to those who are entirely price-minded. In making price schedules we should not simply take the lower electric brackets as our base. A careful survey of electric customers should be made; increase in consumption due to electric ranges should be noted. The ratio of this increased consumption in relation to the increase in the customer's monthly bill determines the actual cost of electric cookery in cents per kilowatt-hour.

This brings us up to the point of relative efficiencies of the two fuels, into which enters a lot of "ifs." In the case of electricity, *if* proper sized utensils are used, *if* the housewife "coasts" to a stop by shutting off the current and taking advantage of the heat remaining in the heating unit, *if* she carefully selects menus to take advantage of the "cooker" unit, it is true that efficiences as high as 75% may be reached. How many housewives will religiously stick to utensils particularly designed for their ranges, and how many will bother to "coast" to a stop? This may be done, but it is like driving an automobile without brakes. It *is* possible, but *not* convenient.

Comparative Efficiencies

In theory, and under laboratory conditions, comparative efficiencies show equivalents of anywhere from 3.67 kw. hr. up to 6.34 kw. hr. to 1 lb. of propane (21,650 B.t.u.). In actual practice there is little if any difference in the efficiences of the two fuels for cooking purposes, and we can therefore base our high bracket prices on 6.34 kw. hr. to 1 lb. of propane. At a 2 cent per kw. hr. rate we would therefore be in a favorable competitive position with propane at 12 cents per lb.

Additional Use Sought

Having established our high bracket price, the question then arises where should we start to break our price? The object of a break in price is to encourage additional consumption. Certainly, then, we should not make any radical break in our price until the customer reaches a reasonable minimum consumption, which we have estimated to be 30 lbs. per month or 360 lbs. per year for cooking. Our first step reduction should be on the fourth hundred pounds, and then it should be very small up to the point where our break-even number of deliveries per year is reached.

A minimum dual usage consumption is approximately 80 lbs. per month, or 960 lbs. per year. At this point a rate should be established decidedly to the advantage of the customer to use gas for refrigeration, water heating, or both, and at the same time show us a nice margin of profit. The cooking schedule, however, at this consumption should not be as low as the dual usage rate; otherwise, the sales advantages of the dual usage rate would be lost.

From the dual usage rate to our rock-bottom price for large commercial and industrial users the break should be a gradual one and with many steps; otherwise, a condition might arise where it would

not be advantageous to us from a profit angle to encourage additional consumption. A typical example of this exists in the price schedule of one large company, an excerpt of which is as follows:

Bottles Per Year	*Price Per Bottle*	*Total Bill For Year*
31	$7.50	$232.50
32	$6.50	$208.00
40	$6.50	$260.00
41	$6.00	$246.00
43	$6.00	$258.00

In other words, here is a condition where it would pay the 31-bottle user to buy one more bottle, dump it, and save $24.50; or the 40-bottle user to buy one more bottle and save $14.00! It is also a condition which would encourage the dealer to hold consumption below the 31 bottle mark, unless he could jump it to at least 36 bottles!

These are general rules, but if they are followed they will result in schedules which are fair to both consumer and dealer. By following these general principles it is possible for any dealer to establish fair trade schedules applicable to his territory.

What Method Is the Best for Dispensing and Pricing Propane?

The principle dispensing methods in use are as follows:

A. METERS. 1—By the pound. 2—By the cubic foot. 3—By the therm or decitherm. 4—By special unit.

B. VOLUME. 1—By the gallon.

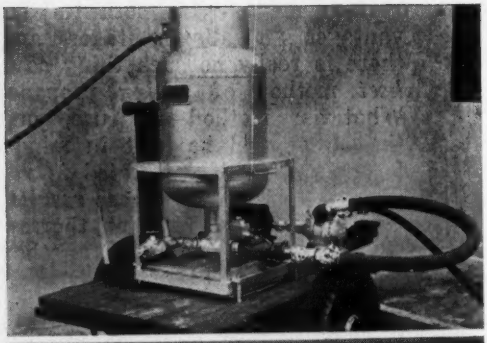
C. WEIGHT. 1—By the pound.

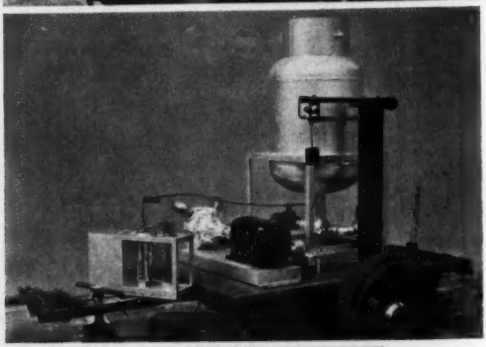
Each method has both its advantages and disadvantages, and there is really no such thing as a *best* method of selling propane. Whatever method we use, one thought should be kept in mind: *The customer is interested in results and the cost of those results,* not in pounds, cubic feet, therms, special units, or gallons. In other words, *how many usable heat units are we selling him for $1.00 in comparison with other fuels?*

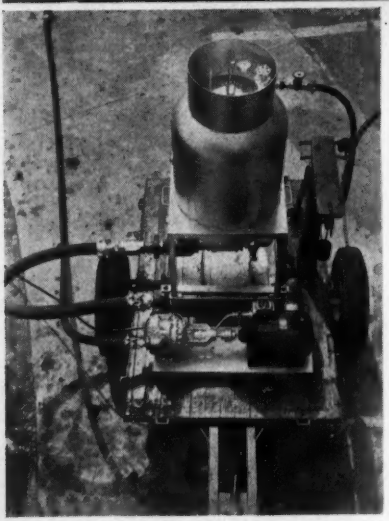
As to the pricing of our merchandise, there are two fundamental methods:

1. On the basis of actual consumption.
2. On the basis of estimated consumption.

The first method is unquestionably fairer to all concerned, but it presents several sales obstacles. The second method is apt to work injustices if estimates are incorrect. A combination of both methods is used by one large company which sells gas on a "days between orders" basis. Even this method is not entirely satisfactory as it often gives the seasonal customer a lower rate than that enjoyed by a year-round account using the same amount of gas. No perfect system of pricing and collecting for our merchandise has yet been devised, or is it likely to be. Stick to the basic method of pricing, with your prices on a competitive heat-unit basis, and you cannot go far astray!







Equipment For Testing LP-Gas Meters In the Field

FIG. 1 (at top): Testing outfit, showing mounting on scale and trailer.

FIG. 2 (center): Testing outfit, showing connections, specific gravity kit, electric motor and pump.

FIG. 3 (at bottom): Overhead view of testing outfit, showing pressure gage, thermometer, and connection for vapor return line.

Testing LP-Gas Meter Systems By the Gravimetric Method

By CHARLES MORRIS FULLER*

Sealer of Weights and Measures, Los Angeles County, Calif.

LAST year, we discussed the measurement of liquefied petroleum gases under the several headings of physical properties; instruments for commercial measurement; measurement problems of the distribution industry; and, contemplated methods of testing meter systems for accuracy of measurement delivered to the buyer.

At that time, I described two proposed types of testing units for use in the field. These must be portable so that they can be readily moved from place to place, and the meters tested as used, so as to make sure that the entire installation is correct. This creates an entirely different problem from that of a laboratory method where the testing unit is stationary, the downward displacement of water is used to keep the liquefied gas under pressure, and the meter, only, is tested for accuracy. It is obvious that a meter, no matter how accurate it may be, cannot deliver full measure if installed in a faulty system that allows vapor or air to pass through.

One contemplated testing unit was of the volumetric type, utilizing a tank, shaped something like a mushroom, with a large chamber below for the liquid, a connecting column and a gage glass between, and an accumulator chamber above for the vapor. The other proposed unit made use of the gravimetric or weight method.

We had in mind building one outfit that would combine both methods, but found that would not be practical. The weight and bulk of the volumetric unit was too great for transportation and use on a portable scale of the required sensitivity. Therefore, we built a gravimetric outfit, as there appear to be many reasons why this offers more accuracy, with a smaller number of variables to be considered, then the volumetric type.

The Problems That Arise

The latter might seem to be more direct at first consideration, until such problems arise as vaporization taking place in the unit under certain conditions of pressures and temperatures; condensation under other varying conditions; changes in the capacity of the tank under different pressures; and differences in level of the liquid in the tank and in the column gage glass on

* A paper delivered before the 31st National Conference on Weights and Measures, sponsored by the National Bureau of Standards, Department of Commerce, in Washington, D. C., on June 3.

account of the effect of outside temperature on the column glass.

However, we are planning to build an outfit of the volumetric type, which will have an insulated, jacketed, reflex gage glass. We will then be able to make comparative tests at the same meter installations, and arrive at definite conclusions regarding the relative merits of these two methods.

The Method of Mounting

By following the illustrations, you will get a clear understanding of our outfit and its operation. Fig. 1 shows the method of mounting on a scale and trailer. The scale is set in the floor of the trailer. It is provided with a drop lever which removes all weight from the bearings when not in actual use. It has a capacity of 1000 lbs., a 50-lb. beam with 4-oz. graduations, and is sensitive enough to show one ounce under a full capacity load through the use of an arrow indicator for exact balance.

The tank is constructed of heavy gage steel, the heads being of ¼-in. thickness, and the shell 5/16-in., to withstand a pressure of 250 pounds. This is strong enough to provide for the testing of propane. A thermometer well is set in the fill line for taking the operating temperature of the liquid. This well is made of brass and is filled with kerosene to obtain better contact with the thermometer.

An electric motor and pump are used to return the liquid to storage after the test is made. The motor is explosion-proof, is wired for 220 volts, and can be operated at 110 volts through the use of an adapter switch. The pump is especially made for handling liquefied gases and has a capacity of 50 to 60 gals. per min.

All fittings, piping, elbows, etc., are of extra-heavy malleable iron to withstand 300 lbs. pressure. The brass valves are of special construction, pressure type. The hose connections are of synthetic rubber, with a wire woven-in which accomplishes the purpose of a grounded connection, and made for use with liquefied gases.

Fig. 2 shows the specific gravity kit in use, with the sampling line connected to the operating fill line. The arrow indicator for balancing the scale is also visible.

The overhead view in Fig. 3 shows the pressure gage, vapor return connection, thermometer, and pressure relief or safety valve. There is also a 10% valve which does not show above the rim.

The side of the specific gravity kit is illustrated in Fig. 4. The vacuum flask on the right end, used for testing the samples for specific gravity, contains a stirring rod, a low temperature thermometer, and a special hydrometer. Its operation will be described later.

Uniform Conditions Are Provided

We are now ready to make a test. In order to secure uniform conditions, 50 gals. are run into the test tank, and then returned to storage. This serves the purpose of charging it with vapor and equalizing the temperature.

The hose connections are disconnected and a tare weight made of the tank. It is again connected

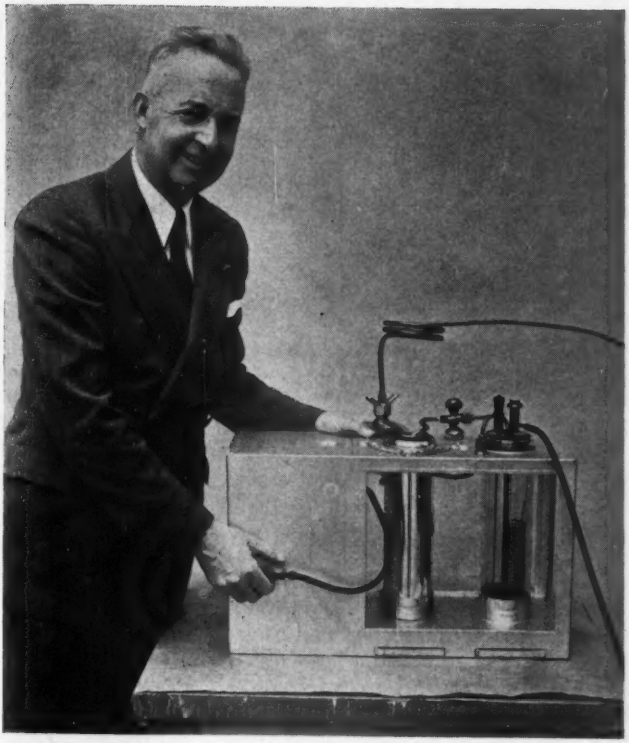


FIG. 4: Specific gravity kit, showing wire cage in thermos for thermometer and hydrometer, and details of operation. At the "controls" is Charles M. Fuller, sealer of weights and measures for Los Angeles county, California.

to the meter which is operated until a delivery of 50 gals. is indicated. The operating temperature is taken at the half-way mark of 25 gallons. When the run is completed, the hoses are disconnected, and the gross weight taken. We are then able to compute the net weight of the delivery.

The sampling line is attached to the specific gravity kit. Fig. 4 illustrates the operation of this device. The chamber on the left contains a U-tube filled with calcium chloride. When air is forced through this, it is completely dry and will eliminate any moisture which might otherwise form on the thermometer or hydrometer in the sample flask and affect their accuracy. This is an improvement on the original kit, which was described last year. The silvered vacuum flask in the center of the kit contains a long coil of soft copper tubing. The remaining space in this flask is packed with CO_2 or "dry ice."

The sample flask, shown on the right, is pre-cooled by allowing it to be filled with some of the liquefied gas which first flows slowly

through the coils in the silvered flask. The stopper in the top of the flask is left open during this cooling process. The stopper is then closed, the rubber tube from the sample flask is placed in the silvered cooling flask and, by pressing the bulb, dry air forces the liquid back to the other flask where it forms a cooling bath with the "dry ice." This makes a better contact with the copper tubing and cools the test sample to a temperature of from 75° to 80° F. below zero, where it is stable at atmospheric pressure.

The test sample is now allowed to slowly pass through the coils and into the sample flask which is filled to the immersion mark on the thermometer. A stirring rod insures even distribution of temperature. Several successive readings of the hydrometer and thermometer are made. By means of prepared charts, these readings are converted to the weight per gallon of the liquid at the operating temperature of the 50-gal. test run.

Results Check Throughout

We have made comparative tests of the accuracy of this method of obtaining specific gravities, with the latest pyonometer methods used in the laboratories of the oil companies, and find that the results obtained check throughout.

Now that we have the weight of a gallon of the liquefied gas as it was measured through the meter, and the net weight of the delivery, a simple division gives us the actual amount delivered.

Fig. 5 shows the outfit at work in the field. It is easy to operate and positive in results, so do not allow the length of this description to mislead you into thinking that there is anything difficult about it.

You will find that a great many of the dispensing systems pump against pressure, without a vapor return line, in making deliveries to fuel tanks. Others still retain vapor returns. Our tests must be made in accord with the normal operation of each individual system. If a vapor return line is used, the system should be tested with that connection made to the outfit, and the meter set so that a full delivery will remain in the tank at the end of the run.

Operating Against Pressure

This brings up another problem when a system operates part of the time against pressure, and part of the time with a vapor return. In this case, we believe that the meter should be set to deliver when pumping against pressure; and that an allowance should be made to the purchaser, when a vapor return is used, to compensate for the amount which flows back to the storage tank in the form of vapor.

A number of formulae have been worked out for computing this amount. Two of them are appended to this paper for further consideration. They are, of necessity, somewhat complicated and require quite an amount of figuring.

In drawing up specifications and regulations for measuring devices used in the purchase or sale of liquefied petroleum gases, care must be taken that they do not

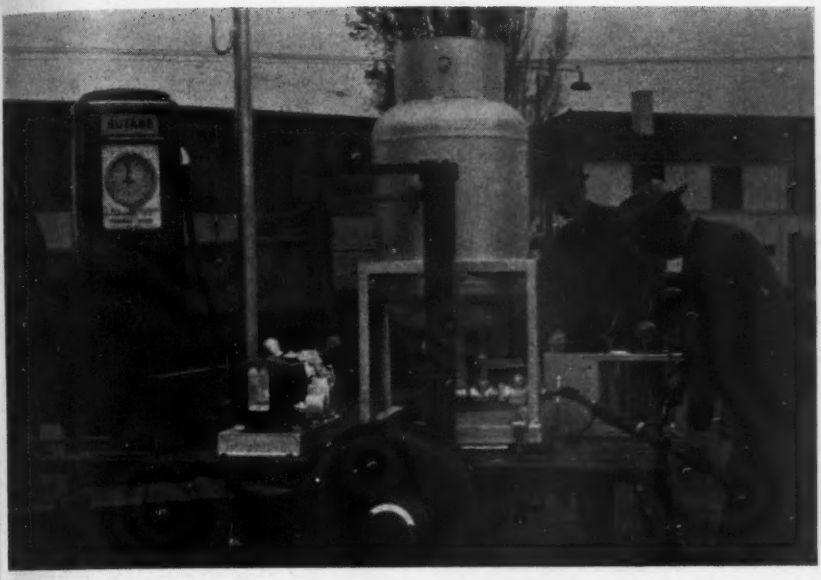


FIG. 5: Testing liquefied petroleum gas meter installations in the field by new gravimetric method.

conflict with safety codes issued by Industrial Accident Commissions. Much of our present code for liquid measuring devices can be adopted, or modified, for this purpose. Sections will have to be added to cover items which are peculiar to this type of equipment and its use, such as dip pipes; column gage glasses; and vapor return credit. On account of the nature of the commodity handled, I believe that it will be necessary to provide somewhat more liberal tolerances than are specified under our present code.

The use of liquefied petroleum gases is rapidly expanding. Service stations are installing and using outfits to meter this product from storage tanks into the fuel tanks of passenger busses, transport trucks, and other automotive equipment. California production last year was over 89 million gallons.

Extended tests are being conducted and, by the time of the next National Conference, we should have enough data available to intelligently draw up for your consideration a complete code of specifications and tolerances.

APPENDIX

References: Bulletin No. T8-392, "Tentative Specifications and Tentative Standard Methods of Test for Liquefied Petroleum Gases." Published by the California Natural Gas Association, Los Angeles. "Handbook of Butane-Propane Gases." Published by Western Business Papers, Inc., Los Angeles.

Hydrometers: (1) Specific gravity

scale 0.580 to 0.600 (60°F./60°F.) (for propane).

(2) Specific gravity scale 0.600 to 0.620 (60°F./60°F.) (winter mixtures).

(3) Specific gravity scale 0.620 to 0.640 (60°F./60°F.) (summer mixtures. Butane.)

Scale length: 2 in. to 3 in.

Diameter of stem: 3/16 in. to ¼ in., O.D.

Hydrometer length: 6 in. to 8 in.

Thermometer: Temperature range: 0°F. to —75°F.

Scale divisions: 1°F.

Scale length: 2½ in. to 3½ in.

Immersion: 4½ in.

Vapor Return Credit: Proposed formulae for computing amount to be allowed purchaser when a vapor return line is used without the meter being set to compensate for same.

Formula No. 1

$$\frac{\text{Gals. del. to veh. tk.} \times (\text{veh. tk. press.} + 14.7)}{7.0 \times (\text{veh. tk. temp.} + 460)} = \text{Gals.}$$

Formula No. 2

$$\frac{\text{Gals. del. to veh. tk.} \times (P_1 + 14.7)}{7.0 \times (T_1 + 460)} + \frac{\text{Outage} \times (P_1 + 14.7)}{7.0 \times (T_1 + 460)} - \frac{\text{Outage} \times (P_2 + 14.7)}{7.0 \times (T_2 + 460)} = \text{Gals.}$$

P_1 = Pressure on vehicle tank at start of loading.

P_2 = Pressure on vehicle tank at finish of loading.

T_1 = Temp. of vapor in vehicle tank at start of loading.

T_2 = Temp. of vapor in vehicle tank at finish of loading.

Outage = Space left in vehicle tank above liquid, after loading.

14.7 = Atmospheric pressure (sea level).

460 = Number of degrees F. from "absolute zero" to 0°F.

Home Gas Co. Will Construct Plant in Montevideo, Minn.

Weldon A. Simons announced recently that a bottled gas plant will be established in Montevideo, Minn., this summer by The Home Gas Co.

Heretofore, the community and surrounding territory was serviced with bottled gas via steel cylinder tanks shipped in and distributed by Mr. Simons. The new set-up calls for a centralized storage tank of 15,000 gals. capacity, from which the cylinder tanks are filled and then delivered to customers. The gas will be brought to the central storage tank by railroad tank cars.

The new plant is to be located along the Milwaukee railway right-of-way, the definite site to be selected later. Construction is to begin as soon as possible, the delivery of steel materials making a definite time impossible.

The Home Gas Co., originated in Hutchinson, Minn., and has since built additional plants at Sauk Centre and Mankato, Minn. Operated by local residents the name of the new plant will be the "Montevideo Bottled Gas" division of The Home Gas Co., of which F. T. McCahill is president.

CALENDAR

July

L. P. G. A. Southern California-Arizona District of Pacific Coast Section —Clark Hotel, Los Angeles, July 9.

L.P.G.A. San Francisco-Sacramento-Stockton District of Pacific Coast Section — July 21.

L.P.G.A. San Joaquin District of Pacific Coast Section — July 22.

L.P.G.A. Pacific Northwest District of Pacific Coast Section — July 26.

October

American Gas Association 23rd Annual Convention — Atlantic City, the week of October 20.

California Natural Gasoline Association, 16th Annual Fall Meeting—Ambassador Hotel, Los Angeles, October 31.

1940 Domestic LP-Gas Sales Increased 53% Over 1939

THE rapidly growing interest in liquefied petroleum gases, stimulated by their numerous uses as fuels, is evidenced in a 40% gain in sales in 1940, when deliveries increased to 313,456,000 gals.* compared with 223,580,000 gals. in 1939, according to the Bureau of Mines, United States Department of the Interior in its report released June 11. The expansion of approximately 90,000,000 gals. in sales during 1940 is remarkable, when it is observed that this increment is nearly equal to the total requirements in 1936 and that the volume of the marketed production of liquefied petroleum gases has about trebeled in four years. Total sales for the years 1934-1940, inclusive, are shown in Table 1.

All principal uses of liquefied petroleum gases made important gains in 1940 compared with requirements in 1939. Sales for domestic consumption or in the "bottled-gas" trade increased by 53%, while gas-manufacturing companies purchased 31% more liquefied petroleum gases in 1940 than in 1939 for mixture with their manufactured gas and for direct distribution through their lines to consumers. Deliveries of liquefied petroleum gases for consumption as an industrial fuel, which made an outstanding gain of 59% in 1939 in contrast to a loss in 1938, increased only 12% in 1940 over 1939—the lowest rate of expansion for the several principal uses. Manufacturers of chemicals, who bought smaller quantities of liquefied petroleum gases in 1939 than in 1938 (due partly to overstocking in the latter year) purchased 29% more of these gases in 1940

* In the February issue of BUTANE-PROPANE *News* (page 11) appeared an advance, unofficial survey of 1940 sales by G. G. Oberfell, Phillips Petroleum Co. His estimate was 300,000,000 gals.

TABLE 1. SALES OF LIQUEFIED PETROLEUM GASES, 1934-40
(Thousands of gallons)

Year	*Butane*	*Propane*	*Butane-propane mixtures*	*Pentane*	*Total*
1934	25,553	18,681	10,271	1,922	56,427
1935	34,084	26,814	13,492	2,465	76,855
1936	40,200	36,502	27,375	2,575	106,652
1937	45,399	46,474	46,694	2,833	141,400
1938	52,768	54,130	56,050	2,253	165,201
1939	71,351	79,323	69,020	3,886	223,580
1940[1]	77,056	109,216	123,348	3,836	313,456

[1] Figures for 1940 subject to revision.

TABLE 2. MARKETED PRODUCTION OF LIQUEFIED PETROLEUM GASES BY USES, METHODS OF TRANSPORTATION, AND REGIONAL DISTRIBUTION, 1939-40

TOTAL—ALL GASES

(Thousands of gallons)

	1940[1]				*1939*			
	Bulk	*Cylinder*	*Total*	*Percent of total*	*Bulk*	*Cylinder*	*Total*	*Percent of total*
By uses:								
Domestic:	67,749	66,269	134,018	42.7	36,611	50,919	87,530	39.2
Pacific Coast area.	14,236	8,183	22,419	...	7,807	7,248	15,055	...
All other areas...	53,513	58,086	111,599	...	28,804	43,671	72,475	...
Gas manufacturing:	20,285	...	20,285	6.5	15,433	2	15,435	6.9
Pacific Coast area.	8,298	...	8,298	...	7,250	...	7,250	...
All other areas...	11,987	...	11,987	...	8,183	2	8,185	...
Industrial fuel:.....	68,325	1,567	69,892	22.3	61,100	1,240	62,340	27.9
Pacific Coast area.	1,775	481	2,256	...	1,286	362	1,648	...
All other areas...	66,550	1,086	67,636	...	59,814	878	60,692	...
Chemical manufacturing:	34,603	68	34,671	11.1	26,890	2	26,892	12.0
Pacific Coast area.	...	...	...	...	...	...	...	...
All other areas...	34,603	68	34,671	...	26,890	2	26,892	...
Internal-combustion engine fuel: ...	53,632	286	53,918	17.2	29,330	462	29,792	13.3
Pacific Coast area.	38,849	286	39,135	...	23,860	188	24,048	...
All other areas...	14,783	...	14,783	...	5,470	274	5,744	...
All other uses:.....	583	89	672	.2	1,449	142	1,591	.7
Pacific Coast area.	489	...	489	...	495	1	496	...
All other areas...	94	89	183	...	954	141	1,095	...
Total sales:	245,177	68,279	313,456	100.0	170.813	52,767	223,580	100.0
Pacific Coast area.	63,647	8,950	72,597	23.2	40,698	7,799	48,497	21.7
All other areas...	181,530	59,329	240,859	76.8	130,115	44,968	175,083	78.3
Percent of total....	78.2	21.8	100.0	...	76.4	23.6	100.0	...

[1] Figures for 1940 subject to revision.

than in the preceding year. The rapidly increasing use of liquefied petroleum gases as a fuel for internal-combustion engines is indicated by the 81% gain in sales for this purpose in 1940 compared with 1939. Sales of gases by uses and regional distribution will be found in Table 2.

Exports of liquefied petroleum gases by the producers totaled 1,616,000 gals. in 1940—a 3% gain over the 1939 quantity of 1,570,000 gals. Domestic and export sales of liquefied petroleum gases totaled 315,072,000 gals. in 1940, or 40% over corresponding deliveries of 225,150,000 in 1939.

Butane-Propane Mixtures Gained

Sales of liquefied petroleum gases in recent years have, broadly speaking, comprised nearly equal proportions of propane, butane, and butane-propane mixtures plus an unimportant percentage of pentane. Deliveries reported in 1940 show a deviation from former annual surveys in that, although there was little change in the propane share (about 35% of total sales in both 1939 and 1940), the relative percentages of butane and butane-propane mixtures in the total have changed noticeably. Butane declined from 32% of the total sales in 1939 to 25% in 1940, while butane-propane mixtures gained correspondingly from 31% in 1939 to 39% in 1940. It is believed that this shift in the percentages of butane and butane-propane mixtures in total deliveries is perhaps due to the diversion of butane for the manufacture of motor fuel, synthetic rubber, and other products. Also in former years no agreed-upon specifications were used to separate the several gases covered in the survey.

The proportion of total liquefied-petroleum-gas sales reported for domestic consumption continued its strong upward trend from 35% of deliveries for all purposes in 1938 to 39% in 1939 and to 43% of the marketed production in 1940. Gas manufacturing companies use more liquefied petroleum gases each year but their proportionate share of the total demand has decreased from 7% for both 1938 and 1939 to approximately 6% in 1940. Industrial requirements for liquefied petroleum gases in 1940 failed to show a large gain, as did the other principal uses; furthermore, sales reported in this classification slumped from 28% of the total in 1939 to 22% in 1940. The chemical use of liquefied petroleum gases increased in 1940 compared with 1939; however, the percentage of this trade dropped from 12% of the total market in 1939 to 11% in 1940. The consumption of liquefied petroleum gases as fuel for internal-combustion engines is rapidly becoming important, as evidenced by deliveries for this purpose, which increased from approximately 13% of the total sales in 1938 and 1939 to over 17% in 1940. The use of liquefied petroleum gases as motor fuel in areas east of California made an outstanding gain from 5,744,000 gals. in 1939 to 14,783,000 in 1940; deliveries for this purpose on the Pacific Coast increased from 24,048,000 gals. in 1939 to 39,135,000 in 1940—a 63% expansion.

Percent of total.... 78.2 21.8 100.0

* Figures for 1940 subject to revision.

San Francisco Greets Gas Men

By PAUL LADY

A-TOP Nob Hill in romantic San Francisco, the Pacific Coast Section of the Liquefied Petroleum Gas Association held its Second Annual Convention and Exposition June 9-10. Approximately 400 members and guests registered at convention headquarters in the Fairmont Hotel to take part in the two-day program.

Presiding was R. A. Hansen, Pacific Coast Vice-Chairman. Charles E. McCartney, Pacific Coast Chairman, opened the meeting with a welcome to the group.

"The Liquefied Petroleum Gas Association and Its Relation to the LP-Gas Industry," was the topic discussed by George W. Bach, president, LPGA, who journeyed from Kansas City to attend the meeting. Mr. Bach urged dealers and distributors to work together. By doing so, he believes, they can bring about the acceptance and use of LP-Gas in all sections more rapidly. A strong association is one of the best means of helping industry members to work together.

Ellsworth L. Mills, vice-president, LPGA, discussed the present set-up of the Association. He stated that various Sections throughout the country work closely with the national headquarters. They are all active, growing rapidly and accomplishing a great deal towards the success of the industry.

Presenting a talk and stage demonstration designed primarily for appliance salesmen, E. C. Sorby, promotion director, Geo. D. Roper Corp., had his large audience wondering for 45 minutes what he would "pull out of the bucket next." Mr. Sorby, a master at story telling, entertained his audience with anecdotes, at the same time emphasizing vital points in the art of selling. He told dealers not to wear themselves out by worrying about competition. "We can run our competition down, too," he stated, "but it won't get us very far. The thing we must do is to keep our standard of merchandising high and talk about

Personalities at the San Francisco Convention appear in the accompanying photographs of delegates from many sections.

KENNETH R. D. WOLFE
Fisher Governor Co.
W. T. BENTLEY
Titan Valve & Mfg. Co.
G. W. BACH
President, L.P.G.A.
GEO. R. FRIEDERICH
Fisher Governor Co.
L. C. RONEY
L. C. Roney, Inc.
C. A. MARSH
Multnomah Fuel Co.
G. V. BRAKE
Tokheim Oil Tank & Pump Co.
R. A. HANSEN
Vice-Chairman,
Pacific Coast Section
E. O. BECKWITH
Phillips Petroleum Co.
M. L. BAKER
Standard Oil Co.
D. D. PURRINGTON
Standard Oil Co.
W. T. JOPLIN
Butane Corporation
TALLENT H. RANSOME
Ransome Co.
JOHN K. HELLER
Gasair Corp.
R. STANLEY SMITH
Smith Precision Products Co.
I. J. SYMONS
Hales & Symons
J. B. HILL
Tidewater Associated Oil Co.

J. S. FAGAN
Mutual Liquid Gas Co.
E. C. McENEANY
L.P.G. Equipment Co.
C. E. McCARTNEY, Chairman
Pacific Coast Section
ERNEST FANNIN
Fannin's Gas & Equipment Co.
H. R. REYNOLDS
Maco Gas Co.
J. J. DELANEY
Reliance Regulator Corp.
T. T. ARDEN
Robertshaw Thermostat Co.
A. C. MAYARD
Shell Oil Co., Inc.
G. W. STEVENSON
American Meter Co.
ROBERT HOOE
Hales & Symons
R. G. WAGNER
Ransome Co.
JOHN H. KUNKEL, Secretary
Pacific Coast Section
R. W. CAMPBELL
American Stove Co.
L. J. MEIER
American Stove Co.
HAL SINGLETON
Grayson Heat Control Co.
F. R. FETHERSTON
Secretary, L.P.G.A.
JAMES E. O'HAGAN
Grayson Heat Control Co.

all of the wonderful things gas ranges can do better." Mr. Sorby titled his talk, "Sell the Bloom of the Rose, Not Its Seed."

Simplicity of presentation is important, according to Mr. Sorby. He stated, "We have been doing a big job but have only started and we must reach out for the market of 12 to 13 million homes that lie in rural areas if we are to do a complete job. The selling points for gas ranges, as well as other appliances, are: The initial low cost, economy of operation, and dependability."

"A Survey of LP-Gas as Fuel for Internal Combustion Engines," was presented by C. L. Parkhill, of Parkhill-Wade. He presented a comprehensive talk on the growing use of butane and propane as engine fuels. He illustrated his talk with slides that showed in detail this growth and indicated the huge market of commercial vehicles and farm equipment as yet hardly touched by LP-Gas conversions.

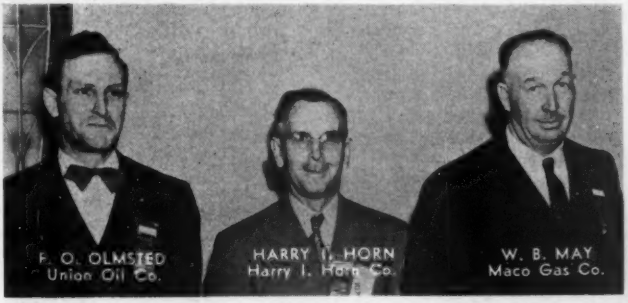
Mr. Parkhill discussed the importance of this fuel in times of war. It can become very useful in a fuel market drained by war priorities, he believes. LP-Gas is being used in internal combustion engines, stationary and movable, and is being more widely accepted every day. Its use on farms and in industry as an engine fuel has been an important factor in the acceptance of LP-Gas for all other purposes.

Presenting again their platform demonstration and paper on "The Physical Properties of LP-Gases," M. B. Anfenger and Dr. O. W. Johnson, Standard Oil Co. of Calif., proved that butane and propane are safe, usable fuels when they are handled and used intelligently by people who know what they are doing.

Monday activities ended with a dinner and program that was attended by several hundred members and guests.

Tuesday morning was spent in a general inspection of exhibits by convention members. Immediately after luncheon, several hundred members and guests, including firemen from cities and counties throughout California, gathered at the Golden Gate Park stadium for an LP-Gas safety and fire demonstration.

Charles J. Brennan, of the San Francisco fire department, acted as chief engineer. Capt. Willis Gallatin was drill master in charge of firemen putting on the demonstrations. Commentators were M. B. Anfenger, Stanley D. Clithero, David F. Glines and Tallent H. Ransome.



LP-Gas Meetings In North Dakota

TOP (left) — At the recent Wesco Gas dealer meeting of the Westland Oil Co., Minot, N.D., R. J. Coughlin, president, Westland Oil Co., (standing) is addressing guests at the "Buffalo Banquet." Seated next to him is C. D. Bruce, general sales manager, Westland Oil Co. Right — At this meeting of the Westland Oil Co., Harris A. Goodwin, district manager, The Bastian-Blessing Co., who took all of the pictures on this page, is demonstrating the use of Wesco gas with a Rego KX torch, used to cut steel plate.

ABOVE — Plant of the Dakotas' Bottlegas Co., W. E. Shettlemore, president, Dorothy E. Shettlemore, secretary-treasurer, at Carrington, N. D. Right—View of a meeting of the Dakotas' Bottlegas Co., last fall. W. E. Shettlemore is in the foreground, seated at left end of table. Served for luncheon were 75 pedigreed capons, raised by Mr. Shettlemore.

Are you losing 1/3 of your load?

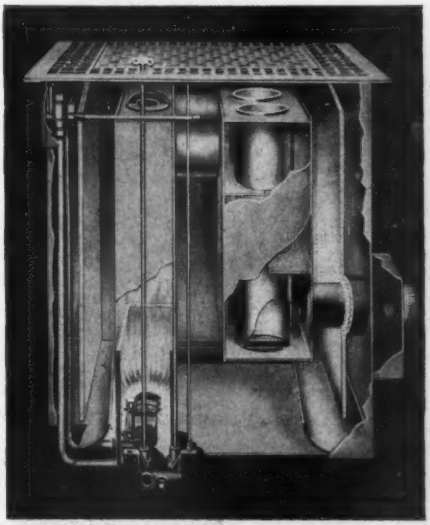
One-third of your load, according to gas industry statistics, should come from space heating. WARD FLOOR FURNACES, easily installed for use with liquefied petroleum gas in old or new homes, will help you get your share of this profitable business.

All Ward Floor Furnaces for use with liquefied petroleum gases carry the American Gas Association *seal of approval.* Standard equipment on *all* models is a new, A.G.A.-approved

100% SAFETY PILOT

a perfect guardian of the home

Equipped with dual or single wall registers or floor registers, as desired.



May we send you a copy of our latest catalog and price list?

WARD HEATER COMPANY, *LOS ANGELES*

WARD *LPG* FLOOR FURNACES

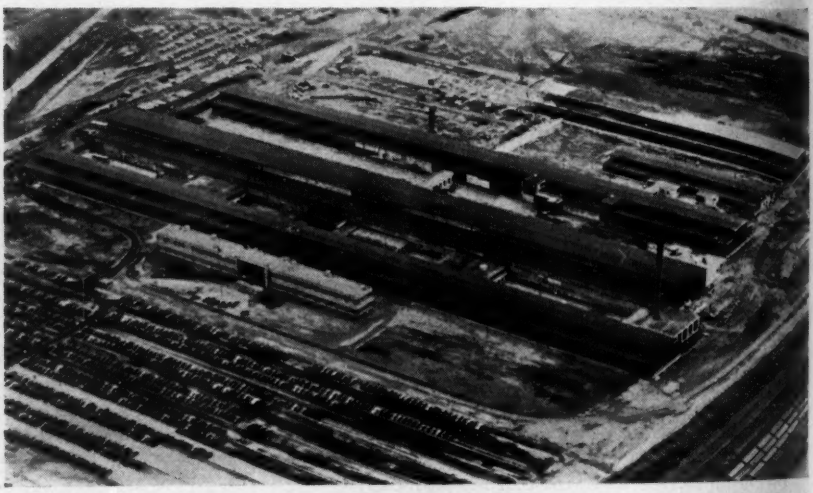
Propane Volunteers for Defense In Minnesota Armament Plant

AS soon as it was rumored that there was to be a new $7,500,000 national defense plant outside the Minneapolis city limits, and beyond the gas mains, the Northwest Hydro-Gas Co., checked with the Minneapolis Gas Light Co. and found there would be no city gas lines extended to the project.

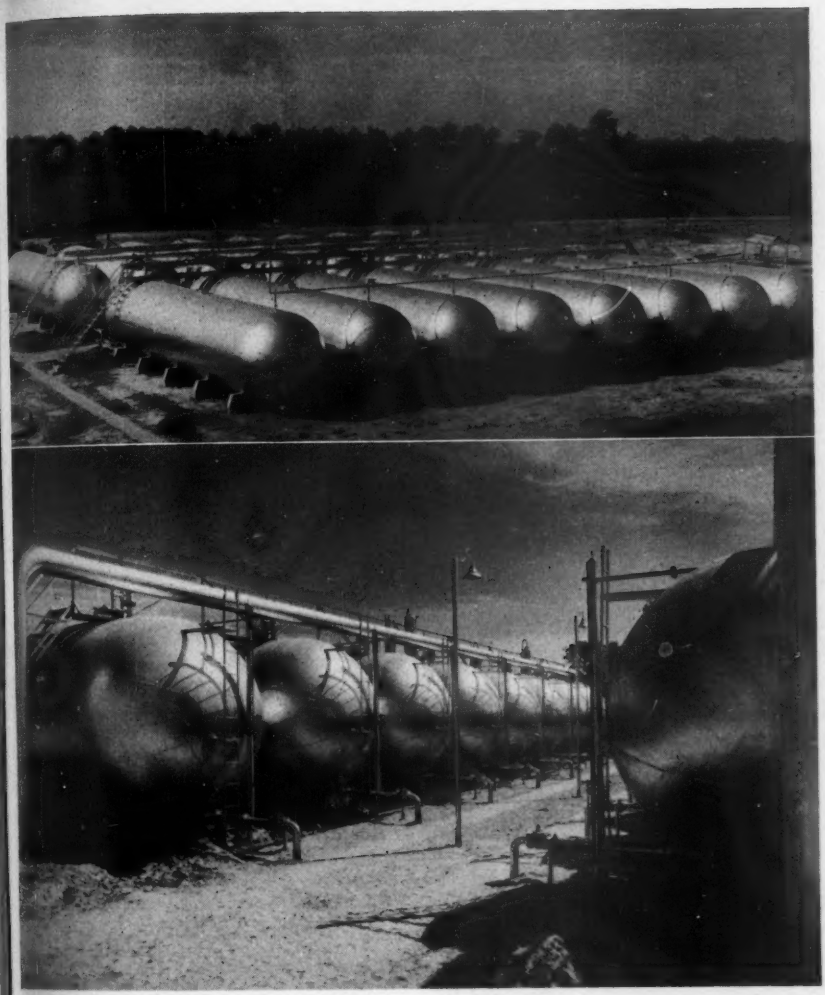
Shortly after this, the Northwest Hydro-Gas Co. signed a contract with the Northern Pump Co., builders of the plant, to install a propane gas system. The negotiations were directed by Charles Bubar, president of the propane company.

The 25-ton storage tank for the plant is 67 ft. long, said to be the largest of its kind in the Northwest, with a capacity of 18,000 gals. It is made of 1-in. steel plate and can withstand 200 lbs. per sq. in. pressure. The tank is equipped with two steam vaporizers capable of vaporizing a minimum of 240 gals. per hour.

More than a mile and a half of 3-in. gas mains have been installed and are now in operation to furnish gas for core baking ovens, annealing furnaces, flame-hardening machines, flame cutting, blasting fur-



Aerial view of the new armaments plant near Minneapolis which will use propane gas supplied by The Northwest Hydro-Gas Co. The storage tank may be seen at the extreme right, center, with railroad siding at lower right and auto parking space at lower left. The plant will handle more than $70,000,00 in naval defense contracts.



Builders of Modern Pressure Storage,
API — ASME Code, for the Industry.

MORE THAN A QUARTER CENTURY
OF DEPENDABLE FABRICATION

Wyatt's

WYATT METAL & BOILER WORKS HOUSTON AND DALLAS, TEXAS

This 18,000-gal. tank will supply propane to the new $7,500,000 defense plant at Fridley, Minn. The Northwest Hydro-Gas Co., Minneapolis, installed the system for the Northern Pump Co.

naces, blue printing machines, and a cafeteria.

The plant, occupying a 250-acre tract, which was, at this time last year, a corn field, is in operation 24 hours a day. The largest of the huge buildings is 1294 feet long. The naval defense contracts total $70,000,000.

Among the first visitors of the new naval armaments plant were Lord and Lady Halifax. The British ambassador to the United States spent more than an hour inspecting the plant where gun mounts and other armament materials are turned out for the navy. John B. Hawley, president of the Northern Pump Co., and Lieut. Com. B. K. Culver, chief naval inspector, accompanied him on the tour.

The defense plant is located at Fridley, Minn., on the northern outskirts of Minneapolis. Less than 500 yards from the Mississippi River, it is approximately 12 miles from Fort Snelling.

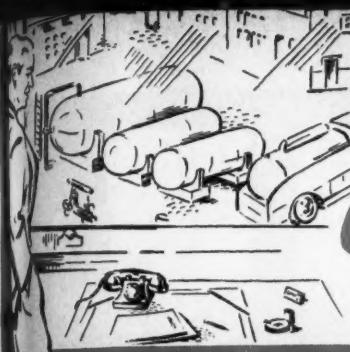
The storage tank was built by William Bros Boiler and Manufacturing Co., Minneapolis, and the steam vaporizers were made by Parkhill-Wade, Los Angeles.

◆ ◆

Dealer Doubles Floor Space For Better Appliance Display

Joe Blickenstaff, retail dealer in Oklahoma City, Okla., for the Oklahoma Automatic Gas Co., statewide distributors, has more than doubled his sales floor space since March 1.

His display room at 16 West California Ave., now has a frontage of 50 ft. New appliances were added recently from a shipment of a carload of Moore ranges and Security water heaters, received by the Oklahoma Automatic Gas Co.



Good Management

BEGINS WITH

Good Measurement

INSTALL

EMCO
Special
BUTANE–PROPANE VAPOR METERS

PITTSBURGH
Liquid
BUTANE–PROPANE METERS

GOOD measurement is just as essential in supplying LPG as it is in the supply of water, natural gas or electricity. And by "good measurement" we mean accurate measurement that can be relied upon by both supplier and consumer.

The Pittsburgh Equitable Meter Company, with the largest and most complete line of meters, regulators and valves for the measurement and control of liquids and gases, offers complete equipment for the LPG Industry, built to the highest standards of quality.

Good management demands that LPG, whether sold at your bulk plant, from your tank truck or at the point of consumption, be measured and measured accurately. There is a proper size and type Pittsburgh Liquid Butane-Propane Meter or EMCO LP Gas Meter for every LPG measuring job.

Bulletins describing equipment for the accurate measurement and control of LPG will be sent upon request.

PITTSBURGH EQUITABLE METER COMPANY

NEW YORK · CHICAGO · TULSA · DES MOINES · BUFFALO · KANSAS CITY · MEMPHIS

MERCO NORDSTROM VALVE COMPANY
Main Offices, Pittsburgh, Pa.
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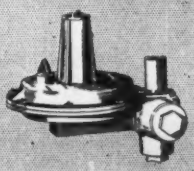
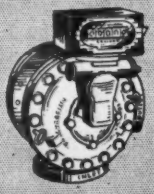
SAN FRANCISCO · BOSTON · PHILADELPHIA · OAKLAND · HOUSTON · LOS ANGELES · COLUMBIA

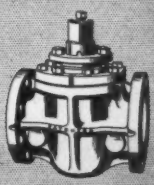
EMCO
Large Capacity
Pressed Steel
Gas Meter



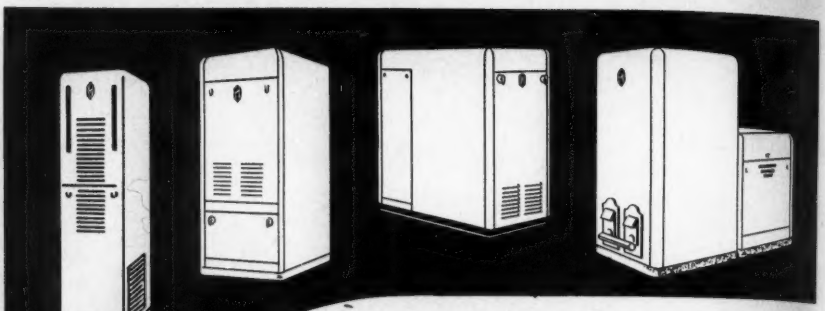
EMCO Type "B"
Ejector Service
Regulator



PITTSBURGH
ROTOCYCLE Meter
for Liquid Butane
or Propane



NORDSTROM
Lubricated
Valves



Here's your A B C of modern FORCED AIR UNITS

CU • WAC • PAC • AC

The clean, filtered, gently moving air forced to every corner of the home by these multiple outlet Fraser furnaces sets a new standard of comfort.

Scientific design, precision construction and fine materials give a lifetime of quiet, efficient economical operation.

It's the INSIDE of the FURNACE that COUNTS

Note these features:
Electrically welded, airtight Firebox of Armco Ingot iron . . . Secondary radiation . . . Famous Fraser "heat-trap" . . . Full floating, corrugated inside Insulator . . . Slow speed, high volume blower . . Pressure Regulator . . . Automatic Fan and Limit Control . . . Float type Humidifier . . . Enclosed controls fully wired and assembled. In fact every proved improvement to make sales and installation easier and reduce service calls to an absolute minimum.

Send for illustrated folders containing complete specifications of these outstanding, load building, A. C. furnaces.

H. R. BASFORD CO.
DISTRIBUTORS
SAN FRANCISCO · LOS ANGELES

FRASER
GAS HEATING EQUIPMENT

FRASER FURNACE CO.
MANUFACTURERS
STOCKTON CALIFORNIA

SELLING

A Wedge to Sales

Here's a message from a sales manager presenting an idea which he has used successfully for years. Others, no doubt, can find it equally valuable. The message:

"Smart sales managers long ago discovered that a prospect is more impressed by what another housewife thinks about an appliance than what the salesman or manufacturer thinks. The high percentage of testimonial letters in use is proof enough that what the user thinks can be turned into profit.

"But I do not have reference to testimonial letters. I am thinking now of another way to put to use what the user says and thinks. The method is not new but it is one that is little used. Yet it serves as such an effective clincher to a sales argument that I wonder why it is so little used.

"I am speaking of what I term the verbal testimonial, or, as others have called it, the verbal proof story.

"To illustrate, let us suppose that a prospect objects to the price, saying that she considers it altogether too high. To be sure, the salesman will want to review and re-emphasize one or more of the wonderful advantages of the appliance in order to dispel the objection. But to clinch his argument, probably nothing would be more effective than to be able to say something about as follows: 'Mrs. Jones, whom you no doubt know, said when she bought this same model last week that she considered it a mighty big bargain.'

"It is not suggested that verbal testimonials be fabricated as you find need for them nor is it necessary to do so. For instance, in the above illustration, the smart salesman could get Mrs. Jones or almost any other customer to say just that in order to have it on hand for the future use of your entire sales force.

"How? By asking Mrs. Jones, or any other prospect who has just made a purchase, if she didn't consider it a mighty big bargain. Nine cases in ten, the answer will be yes. While she cannot be said to have actually uttered the words, her affirmation is sufficient to give any salesman the right to quote her.

"For a long time, I have made it a regular practice to have my salesmen gather verbal testimonials, constantly adding to our already long list. We now have a verbal testimonial which various users have affirmed to cover almost any objection a prospect might bring up. We even have some designed to help the salesman in his initial approach. For instance, our men can say to a prospect, 'I have

stopped by to tell you of the new gas range because I believed you would be as enthusiastic as Mrs. So-and-So, who said, when she first saw it, that it was the best looking range she had ever seen.'

"Such testimonials are comparatively easy to gather and they can add mightily to the effectiveness of your sales story."

Advertising Contact

It is only natural for a merchant to feel repulsed when direct competition makes a direct hit. Yet the most severe competition a gas appliance merchant encounters is usually unseen.

People can spend their dollars only one time. When a prospect's dollars are spent for automobiles, shoes, or furniture, they are just as completely and irrevocably lost to the gas appliance merchant as though they had been spent for a competitive appliance. The merchant has no choice but to wait until the prospect has accumulated other dollars before his chances live again.

The merchant is fortunate if his prospects are accumulating dollars at a rapid rate, but this is seldom the case. It is usually a long wait in any household between the purchase of items which involve the expenditure of $100 or more.

The merchant can profit by the wisdom of the smart wife who soon learns that the competition for her husband's affections is not from the blonde woman upstairs. For a time such thoughts may disturb her, but finally she realizes that it is a golf game, a fishing trip, or a stag party which multiplies the lonely hours spent at home. It is these things with which she must compete to win her share of her husband's time.

And how can a gas appliance merchant meet and overcome his indirect competition? It is not possible for a merchant to maintain a personal contact with all his prospects. Nor is it possible to know when a prospect is considering the purchase of other things which will drain the money till of dollars that could be spent for gas appliances.

For this job, advertising becomes the line of first defense—newspapers, billboards, movies, radio, direct mail, and other forms.

Through the medium of advertising, a gas appliance merchant can maintain a steady contact with his prospects, continuously emphasizing the need for gas appliances for rounding out a joyful home life. Prospects are stimulated to consider their immediate purchase in preference to other things when told of the easy purchase plan and convenient terms offered.

Sell Yourself!

Sales ability implies—first of all—the ability to *sell yourself* to the prospect! The more you develop this ability, the greater will be your sales production.

Sell yourself—your smile, your cheerfulness, your willingness, your desire to help your prospects, your integrity, and your knowledge of LP-Gas and Gas appliances.

LPG DESERVES THE *Precision and Economy* OF CHRONOTHERM *Control*

THE Minneapolis-Honeywell Chronotherm is the finest thermostat it is possible to build. It is heat accelerated, actually senses temperature changes before they are apparent and automatically compensates for them. In addition it automatically lowers temperature to a fuel saving level at night and restores it in the morning before you arise . . . Recommend and install Chronotherm on every job . . . It triples your thermostat profit.

Minneapolis-Honeywell Regulator Co., 2776 Fourth Ave. S., Minneapolis, Minn. Canadian Plant: Toronto. European Plant: London. Company branches in 49 cities.

MINNEAPOLIS-HONEYWELL IS *Selling* AUTOMATIC HEATING FOR YOU WITH 677,000,000 MAGAZINE and BILLBOARD MESSAGES

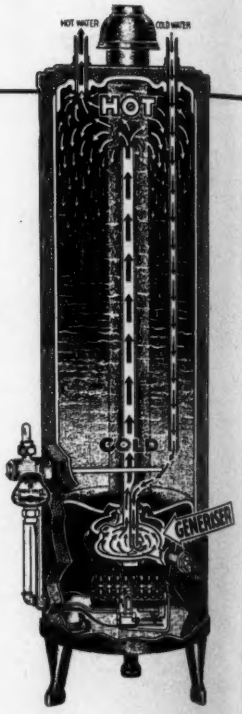
MINNEAPOLIS-HONEYWELL

CONTROL *Systems*

Load-Building News

"GENERISER"

ACCLAIMED BY L. P. GAS INDUSTRY



At last! The ideal water heater for low, hot burning liquefied petroleum gases. ☆ Exclusive with GENERAL, the "Generiser" receives water directly above flame, then by percolator action delivers hot water immediately to top of tank. ☆ "Generiser" prevents liming, delivering remarkable fuel economy—prolongs life of tank—provides complete drain of tank and element. ☆ The pioneer firm of GENERAL manufactures (not just assembles!) water heaters in every size and price range for the L. P. Gas Industry. Build your load with GENERALS.

100% GAS SHUTOFF

Let us explain GENERAL'S other exclusive advantages, and our liberal L. P. G. Dealer offer. Write to R. H. Hinckley, General Sales Manager.

L.P.G eneral

SPECIFICALLY MADE FOR BOTTLED GASES

WATER HEATERS

GENERAL WATER HEATER CORPORATION

7 North Cypress Avenue, Burbank, California

SAN FRANCISCO • DETROIT • KANSAS CITY • DALLAS • HOUSTON • MEMPHIS

DOTTED LINE ROSCOE . . . by Bob Crosby

"O. K. then, young man, how do you tell when the dang stuff's hot?"

"You Can't Beat the Stuff For a Bakery Like Ours"

By JOHN D. MUELLER

"YOU can't beat butane gas as a fuel to do the job efficiently and cheaply for the rural baker."

There is a year of practical experience with LP-Gas behind that statement, made without reservation, by Otto Plemons, one of three brothers who operate the Plemons Bros. bakery a short distance from Cleburne, Texas, a thriving rural community in the Fort Worth area. Theirs is a story of a gradual and increasing use of the fuel, with the ultimate conviction that in it was to be found the answer to more than a few of their problems.

This is Marvin Layland, owner of Layland Plumbing Co., Cleburne, Texas, who made the butane installation in the Plemons Bakery. The underground tank is displayed in front of his office to permit prospects to easily observe its mechanism and to attract attention.

Installation of the Plemons Bros. plant began with the sale to the brothers by the Layland Plumbing Co., of Cleburne, of a small LP-Gas system to furnish heat for use in the homes occupied by the bakers. The system was one of but 250 gals. capacity.

Time passed, and the brothers began to think that perhaps there was fact in the suggestions by Marvin and Irving Layland that LP-Gas was desirable in the bakery.

The Plemons Bros., bakery is located three miles from Cleburne in a strictly rural environment. It is a sort of hub from which distribution system spokes radiate to the several small towns they serve. The site was chosen not alone for this desirable geographical factor, but because at that place fixed overhead, such as rent and increasing taxes, might well be held to lowest possible figures.

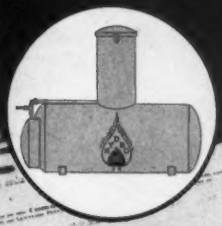
Cleburne is situated in a well wooded area. There are timbered ridges and hollows all about. There

HYDROGAS *Patented Features Will Make More Profits for You*

No other L. P.-Gas System manufactured possesses as many exclusive patented features as does Hydrogas. Twenty-six patents have been issued and many others are pending. These patented features make Hydrogas the most dependable underground L. P.-Gas System available and they give dealers selling advantages possessed by no other line.

Patented features, seven years of proven operation, consumer acceptance and dealer cooperation make for steady sales and extra profits for Hydrogas System dealers. Responsible dealers who are interested in an exclusive Hydrogas System selling franchise should write us today.

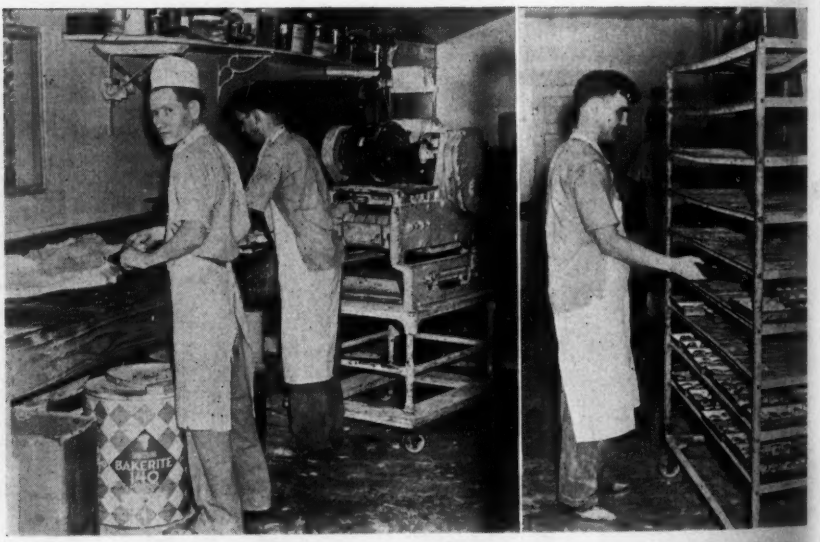
SOUTHERN STEEL CO.
SAN ANTONIO, TEXAS



was an abundance of fire wood. This had been used exclusively by the Plemons Bros. Wood for fuel, however, had many shortcomings. Ovens heated with it needed continuous attention. Ashes had to be removed and fires replenished. When rains were heavy fires could not easily be brought to the required heat in short time. On an average, states Mr. Plemons, an hour was required daily for attention to the fires. On top of this, holding wood fires at steady temperatures was almost impossible; and this had its effect on production, which affected costs.

It was something short of a year ago that the Layland brothers persuaded the Plemons brothers—they are John, Otto and Eddie— to include one of their baking ovens in the system served by the tank which had been installed to provide for the two residences. The oven is one of 21-loaf size, described by the brothers as approximating the average in use in similar rural establishments. The Laylands, discussing the installation at the time, admitted that it was being made largely as an experiment in which they were betting on success. In short, they were taking whatever risks were involved should the plant fail.

To make a long story short, the plant didn't fail. In fact, it suc-



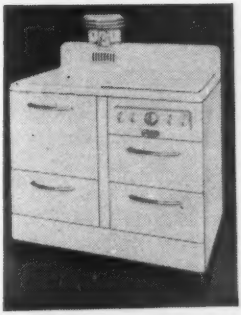
Otto Plemons (left) was busy making rolls when he discussed the highly satisfactory results which have attended conversion of a large part of his firm's plant into one using butane. Steady and unvarying temperatures have been easily and economically achieved with LP-Gas. The attendant on the right is preparing trays of rolls for baking in the gas-fired oven in the background.

BANKS TANKS DOMINATE

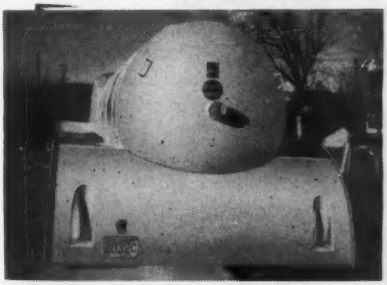
And now! MR. DEALER—

Banks Also Sells...

- TRU-FLAME GAS RANGES
- SCAIFE CYLINDERS
- ALGAS CARBURETORS



Why not look to the leader for better tank values? You profit from tremendous buying power and large fabrication facilities. It's Banks for Butane-Propane Underground Tanks, Bulk Storage Tanks, Skid Tanks, Truck Tanks and other fabrications.



Phone, write, or telegraph today for descriptive folders and complete information. Your message will receive prompt attention!

DALLAS TANK AND WELDING COMPANY, INC.

201-5 W. COMMERCE ST. DALLAS, TEXAS

ceeded so well that Plemons Bros. now are contemplating inclusion of their other large oven in it, installation of another and larger storage tank, and having done as soon as possible with wood as fuel.

In the period since the first oven was linked with the system, there has been added a doughnut frying machine and the boiler to furnish hot water required in the bakery.

Just Right for Rural Bakery

"From every way we are able to look at it," says Otto Plemons, "the system is the thing for a rural bakery like ours. We are sure that the present system is not large enough to handle the load we plan; but it certainly is doing well now!

"We have only a small 250-gal. tank. It is providing heat for our two residences here, for the heating of water, and for the ranges used in our homes. On top of that load, it now is handling the big oven, the doughnut machine and the boiler for heating the water in our plant.

"The cost to us in fuel will average only about $1 a day! You can't very easily beat that."

Is the oven doing its job well in spite of the burden? Here is what Mr. Plemons says:

"It certainly is. We now can fire up a matter of minutes before we begin baking, which means a great deal down here in the heat of summer. The heat is there when it is wanted; and it is steady. We don't have to worry and wonder about it.

"Naturally, it is possible to turn out a better product when you can be sure that the important factor of heat can be depended upon; when you don't have to be giving it continuous attention.

"Also, we naturally can do a better job of processing when we are able to work in relative comfort rather than in the intense heat attending the firing up with wood."

Plemons Bros. plan by the coming of winter to be virtually wholly on a butane basis so far as heat generation goes. The present wood-burning oven will be converted when the stock of wood now piled in the yard is consumed. This will require that heating facility be provided in the shop.

"That really is one of the big reasons that we figure we will have to enlarge the storage capacity. It is going to impose a considerable load to include the heating of the plant. I think otherwise we could tie in the oven and go right along.

"You simply can't beat the stuff for use in a bakery like ours!"

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Butane-Air Gas Standby Plant Will Serve San Diego Firm

Construction will begin soon on the new butane-air gas plant for the Consolidated Aircraft plant at San Diego. It will be built by Butane Ltd., of Los Angeles.

The gas-air plant will serve as standby equipment for the huge new aircraft works, which will be one of the largest in the country. According to army specifications, all parts of the gas-air plant will be completely underground. This measure is taken as a safety precaution against possible attack by enemy aircraft.

The plant will have a capacity of 200 gals. an hour. An electric heat exchanger will be used for the conversion of liquid butane to gas-air.

Ride the
OLD STOVE ROUND-UP
to New
SALES PEAKS

ROPER
GAS RANGES

EXCLUSIVE FEATURES
That Rope In
Those Old Stoves
Patented "Staggered Top"
"Glo" Broiler
"Peasant-Ware" Grill with Serve Tray

KEEP UP YOUR PROMOTION

Aggressive promotion is just as important today as it ever was. You must promote to keep your name before the public—to tell about new gas range developments—to get your share of today's market—to stymie competition both present and future.

The new Roper Old Stove Round-Up sales plan is more complete, has more new ideas and more sales appeal than ever before.

Corral Customers with These Sales Helps

- Window Displays
- Newspaper Ads
- Mailing Pieces
- Ideas Galore
- Colorful Banners

GEO. D. ROPER CORPORATION
GENERAL SALES OFFICE AND PLANT: ROCKFORD, ILLINOIS

ROPER GAS RANGES FOR ALL TYPE GASES INCLUDING LIQUEFIED PETROLEUM GAS

SAFE-- DEPENDABLE

The RegO Cash and Carry Reg
ulator Outfit No. 2483, show
at left is complete with a lo
pressure hose, a regulator
insure constant service pre
sure and an inlet assembl
with large wing nut for conne
tion to cylinder valve. N
wrench is required.

The RegO Cylinder Valve No
2579A for Cash and Carry Ou
fits fits the system at the le
as well as at the right. Manua
ly operated, packless typ
shut-off valve operates on ca
and lever principle and i
cludes a 'pop' action safety r
lief valve, a fuse plug and ou
let connection.

SPECI

REGO

EQUIPMENT FOR
CASH AND CARRY SYSTEMS

REGO EQUIPMENT FOR CASH AND CARRY SYSTEMS

REGO

AUTOMATIC THROWOVER MANIFOLD REGULATORS

No. 2540 with Direct Gauge
No. 2541 with Remote Gauge

Both these outfits for Cash and Carry Systems include a second stage regulator in ONE SIMPLE UNITARY ASSEMBLY. The indicating gauge shows whether fuel is being withdrawn from SERVICE or RESERVE cylinder.

The above outfits for Cash and Carry Systems function automatically and give maximum protection. Whenever the service cylinder is exhausted or when heavy fuel withdrawal depletes the pressure, the throwover manifold regulator automatically supplies fuel from the reserve side. The pigtails are heavy duty reinforced Neoprene hose. An excess flow check valve is provided in the nipple of the wing nut connection to prevent excessive discharge of fuel to atmosphere in the event of complete failure of the pigtail due to an accident.

REGO EQUIPMENT FOR YOUR CASH AND CARRY SYSTEMS

REGO LPG EQUIPMENT

The BASTIAN-BLESSING Co.

258 E. Ontario St. Chicago, Ill.

Pioneers in equipment for using and controlling high pressure gases.

He Sells Wood to Buy Gas

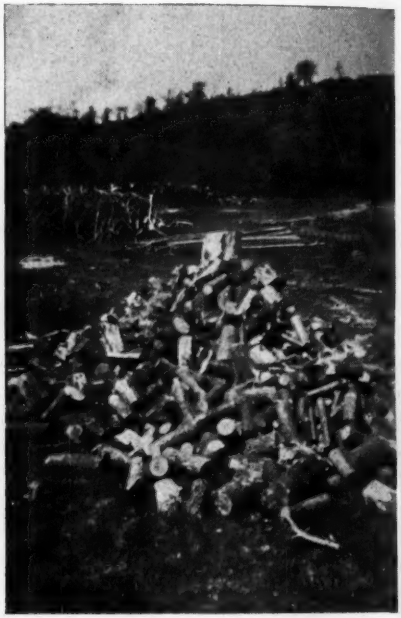
By GORDON SHEPARD

IN spite of the fact that during the winter months W. E. Billmeyer makes a regular business of cutting and delivering wood for fuel to local residents, he uses liquefied petroleum gas for cooking and heating in his own modern farm home six miles north of West Union, Iowa.

"I have 60 acres of heavy timber on my 200 acre farm," Mr. Billmeyer said, "and at first it would almost seem foolish to spend money for other fuel when wood costs me absolutely nothing except the labor of cutting and hauling it." "But," he added, "with the sale of but one cord of oak or maple wood, I can buy a drum of Skelgas which lasts our family of five from three to six months. It seems to me that is just good common sense considering the advantages gas has over wood for fuel."

With an abundance of hard wood along the banks of the Little Turkey river in the northeastern part of the "tall corn state," many residents use wood both for cooking and heating of their homes, which is sold by farmers who cut and deliver it for $4 to $7 a cord, depending on the type of wood.

When ordinary farm work is light in winter, Mr. Billmeyer, with a crew of helpers, cuts and delivers this wood to his regular list of customers by truck. His father, one of the pioneers in that part of the country, used to haul cord wood 20 or 25 miles with a team of horses and sled over roads that were as bad as the old-fashioned wood ranges and pot-bellied stoves they used for heating would now seem to modern women.



This may look like a cord of wood, but to W. E. Billmeyer, of West Union, Iowa, it represents three to six months supply of gas for household cooking.

"Of course," Mr. Billmeyer remarked, "we still have the intense cold and deep snow to combat, but now snowplows keep the roads

Sales Are Easier If You Sell

SINCLAIR

PROPANE and BUTANE

Sinclair is a word that millions of Americans identify daily with high quality products and efficient, friendly service. That's why alert, progressive dealers of LP-Gas are finding that it pays to sell under the standard of Sinclair.

The public approval and national acceptance of the famous Sinclair brand, combined with local reputation and service, has enabled many aggressive distributors of LP-Gas to achieve positions of leadership in their own communities. Investigate the Sinclair LP-Gas distributorship. Write today for complete information.

Your Co-Operative Source of Supply . . . Sold Only In Wholesale Lots.

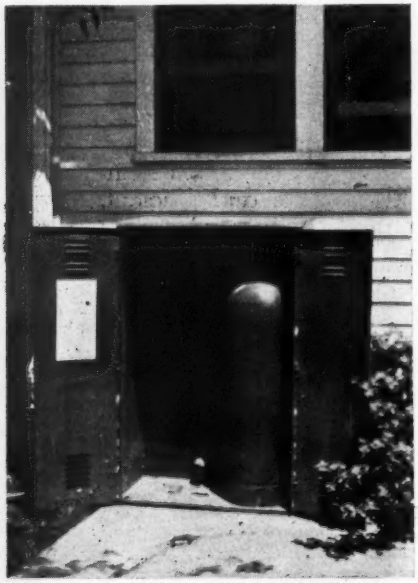
SINCLAIR BUILDING — TULSA, OKLA.

SINCLAIR PRAIRIE OIL COMPANY

clear and gas is the heating agent."

Mr. Billmeyer and his family also enjoy electric lights from their own 32-volt farm plant. The same motor is used for charging storage batteries for lights and for the compressor tank which supplies running water. Mrs. Billmeyer uses many up-to-date appliances. "Our next addition," she said, "will be a gas refrigerator which can be connected to the bottled gas." "Really," she added, "with such modern conveniences, I don't see why everyone doesn't live in the country."

"With temperatures sometimes over 100° in summer, cooking used to be quite a problem," she continued. "Frequently the family could hardly eat after a meal was prepared on account of the intense heat from the old wood range. Now, even after getting a meal for as many as 15 or 20 men at threshing time, the house cools off quickly after the flame is extinguished.



A cylinder of gas in a steel cabinet outside the house. Two cylinders are usually kept in this container, and safety instructions are pasted on the inside of the left hand door.

Power buz, or circular, saw used by Mr. Billmeyer to cut wood in suitable lengths for cook stoves, and piles of wood waiting to be "worked up."

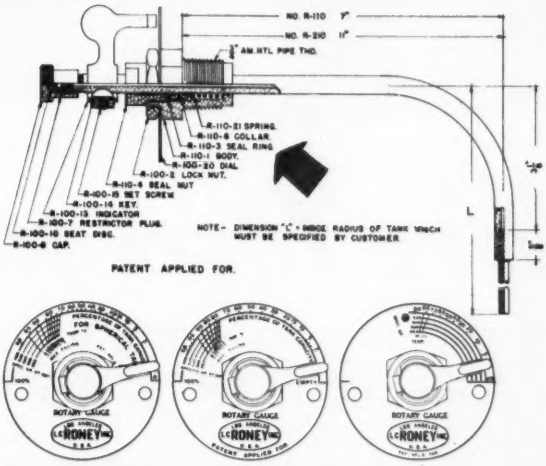
"Two of my children, Marjorie and Buddie, have to go more than two miles to school, while the eldest, Ellen Frances, travels six miles to attend high school. We used to have to wait so long for the old cast iron stove to heat on winter mornings that they were sometimes late for school; now, we have a hot flame as soon as the gas is turned on," she stated. "Then too, you have to do a lot of baking for three hungry children, and believe me, it is a comfort to have an oven you can regulate."

To prove she liked baking with the controlled oven she uncovered a tempting angel food cake and two freshly-baked cherry pies.

C. R. Stendel, Skelgas dealer in West Union, Iowa, made the installation for the Billmeyers.

New "SEALING RING" ON RONEY ROTARY GAUGES

ELIMINATES OLD FASHIONED PACKING



FREEDOM FROM LEAKS NOW ASSURED

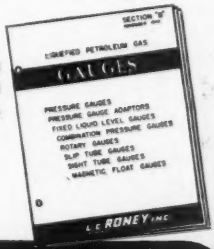
"The Higher The Pressure The Greater The Seal"

Another proven development from the veteran Roney organization is this new line of Rotary Gauges designed to give years of trouble-free operation. By substituting a uniquely designed (patent applied for) neoprene "sealing ring" for the conventional packing gland a positive seal is made without sticking, binding or leaking under the most severe pressure conditions.

Maximum Filling Levels Assured

Dials are calibrated in the upper range for maximum filling levels at various temperatures and specific gravities. Available for both spherical and cylindrical tanks, and for installations at 10% level.

Send for booklet



Whatever the Need
Whatever the Problem

"WRITE RONEY"

L. C. RONEY INC.
1740-44 W. 59th ST. • LOS ANGELES, CALIF.

Largest and most Experienced Manufacturing Engineers and Jobbers of L. P. G. Equipment

"Weve Increased Sales and Profits

BY PUSHING GAS REFRIGERATION"

. . . say L. P.-Gas Dealers!

1 **"Servel is tops** with us! It's one of the most attractive appliances on the market in exterior appearance. It has a strong story on the conveniences and savings it makes possible. Its 'freezing with no moving parts' can't be equalled by any other automatic refrigerator on the market.

2 **"L. P.-Gas Users** *go* for the Gas Refrigerator, too. It means an added convenience for their homes that they can have on their individual gas service . . . a convenience they all want. From their experience cooking with L.P.-Gas, they know *gas* refrigeration means *reliable* refrigeration.

3 **"Yes, everybody** wants *permanent* silence, *continued* low operating cost, and long life of dependable service in their automatic refrigerators . . . and Servel Electrolux alone can assure them of *all* these advantages. This is why pushing Gas Refrigeration is profitable for us in more ways than one. In addition to earning direct merchandising profits, we stimulate the sale of other gas appliances, protect our present gas load, build new load, and promote the use of gas."

Gas Refrigeration:

- **PROTECTS PRESENT LOAD**
- **BUILDS NEW LOAD**
- **STIMULATES GAS APPLIANCE SALES**
- **PUBLICIZES MODERNITY OF GAS**

Louisiana Dealers Discuss Insurance

THE Louisiana Butane Dealers Association met in Baton Rouge June 6 to discuss the question of adequate and reasonable insurance rates and the various types of insurance that butane dealers should carry. The meeting was under the direction of the Association's president, Louis Abramson, Jr.

Final conclusions regarding the insurance problems could not be reached and a second meeting has been called for June 27 for further discussion.

The Association also went on record in advocating a more active enforcement of the State Acts controlling the LP-Gas business and application to the State treasury for additional funds to provide inspectors.

L. C. Parker, former assistant attorney general for Louisiana, has been retained by the Association as its legal counsel and to head its official headquarters in Baton Rouge, through which members may clear any problems among themselves or with the State. At the June 6 meeting Mr. Parker discussed the statute on "Unfair Sales," an Act prohibiting practices that prevent honest competition.

Leslie Kiper is secretary-treasurer of the Association.

On exhibition at the Seventh Annual Truck, Trailer and Equipment Show, held in Los Angeles May 23-24, this new truck and trailer unit was representative of the rapid growth of the LP-Gas industry. Built by American Pipe and Steel Co., Alhambra, Calif., it has a gross capacity of 6670 gals. The unit is in the service of Crook Co., Los Angeles, Bu-Gas distributors for Southern California. With a 125-lb. working pressure, the unit complies with API-ASME code and is equipped with all necessary fittings for safe and efficient operation.

FLORENCE BUILDS PROFITS FOR YOU IN LASTING LPG PAYLOADS!

When you sell a Florence, you are selling much more than a top-ranking LPG range. You are selling dependable, easy, trouble-free cooking, year in and year out! That sort of service builds steady profits for you in continuing payloads.

This spring, the powerful Florence national advertising campaign heads those profits your way. In big circulation magazines, it will remind your customers that Florence means "the best there is in cooking"!

Go Florence now . . . for a full line of 13 great LPG ranges that make it easy for you to meet the needs of every possible customer . . . in features and in price! Mail the coupon today.

FLORENCE STOVE COMPANY

General Offices and Plant, Gardner, Mass.; *Western Offices and Plant,* Kankakee, Ill.; *Sales Offices:* 1459 Merchandise Mart, Chicago; 45 E. 17th Street, New York; 53 Alabama Street, S.W., Atlanta; 301 N. Market Street, Dallas; and 2730 16th Street, San Francisco.

FLORENCE *Gas Ranges*

FOR LIQUEFIED PETROLEUM GAS

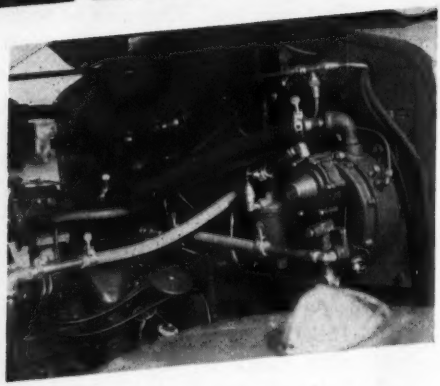
FLORENCE STOVE COMPANY

Please send me the Florence Gas Range Catalog, prices, and full information about the liberal Florence Promotion Plan for Dealers.

*Name*_____

*Address*_____

ENSIGN Model R



BUTANE Regulating UNIT

Last Word in Butane Carburetion Equipment

Simple, efficient and rugged in construction the Ensign Model "R" Butane Regulating Unit, companion to the widely accepted Ensign 700 Series equipment, incorporates in one unit, for compact installations, all the features important to dependable Butane carburetion equipment.

Model "R's" in every type of service are turning in record performances.

Supplementing the 700 Series the "R" has a very definite place for mobile application or wherever installation space is limited. Used in conjunction with Ensign Butane carburetors or combination gas and Butane carburetors, truck and tractor operators are discovering a new kind of profit through the use of Butane correctly vaporized and carbureted.

The Ensign dealer organization and factory engineers will gladly assist you with your operating and installation problems. *Write for complete information.*

ENSIGN

CARBURETOR CO., LTD.

HUNTINGTON PARK, CALIF. • DALLAS, TEXAS • CHICAGO, ILL.

BUTANE Power

Keith Lamont, LP-Gas Engineer, Dies En Route to Convention

Keith Lamont, engineer for Parkhill-Wade, Los Angeles, since 1935, passed away at a hospital in Turlock, Calif., June 9. Mr. Lamont was on his way to attend the L.P.G.A. convention at San Francisco.

KEITH LAMONT

Mr. Lamont has been very active in the LP-Gas industry, working with Mr. Parkhill on specialized types of equipment and installations. One of his most important jobs was the engineering and conversion of Union Pacific's streamline train "The City of Salina."

Mr. Lamont attended the University of Wisconsin where he was an engineering student and was very active in sports.

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Giant Butane Tank Will Haul Government Orders

Designed to haul Government orders of butane gas to California army encampments, the tank portion of a semi-trailer truck has been constructed by Frank North of Corcoran, Calif.

The tank's estimated capacity of 6,200 gal. and its 35-ft. length make it one of the largest in the San Joaquin valley. J. C. Griswold, county sealer of weights and measures, is in charge of testing the tank to determine its correct capacity.

Tests are run, Mr. Griswold says, by filling the tank with water, then forcing the liquid by air pressure from the air tight tank in 50-gallons units.

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Beaumont, Calif., Company Changes Site of Bulk Plant

The Liquefied Gas Co., Beaumont, Calif., recently moved its plant from the East Sixth St. location at the city limits to the property occupied by the new Signal oil plant and service station on the corner of Sixth St. and Wellwood Ave.

The change in the gas plant, according to Charles Denton, proprietor, does not affect the office and show room which still will be maintained in the Beaumont theater building.

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Ralph Small Joins Moretti Bros. In Petaluma, Calif.

Ralph Small, for 13 years area salesman for the Standard Oil Co., Petaluma, Calif., who resigned some time ago, recently entered into partnership with the Moretti Bros., distributors of butane fuel in Petaluma. The Moretti Bros. tank depot is at C and Second streets.

ENGINE FUEL SALES UP 81%

The U. S. Bureau of Mines reports LP-Gas sales for 1940 for internal combustion engines increased 81% in 1940 over 1939. Full details will be found in the article opening on page 39 of this issue.

"Faster than any Pump we have ever used"

The Southeastern Natural Gas Corporation of Miami, Fla., needs speedy service to supply its mushrooming list of customers. And the Moyno L.P.G. Pump, fitted to the chassis of the streamlined tank truck shown below, fills cylinders with propane "two or three times faster than any pump ever used before."

More than 2,000,000 pounds of gas have been handled since the pump was installed last November. It has performed daily with only minor adjustments. As a result, orders for four more R & M Moyno Pumps have been received.

Investigate the new Moyno L.P.G. pump for *your* butane-propane handling job. It is revolutionary in principle . . . valveless, self-priming, positive in displacement, delivering uniform flow without turbulence or vapor lock. Write today for descriptive folder and prices, specifying whether you handle butane or propane or both.

L.P.G. MOYNO PUMPS

ROBBINS & MYERS, Inc.

MOYNO PUMP DIVISION **SPRINGFIELD, OHIO**

Trucks' Fuel Supply Also Used For Appliance Demonstrations

By BERT MERRILL

ONE of the best methods of demonstrating the versatility of butane and propane gases to potential customers of various types is to use it for every purpose in the dealer's business, according to H. G. Baur, vice president of the St. Louis County Butane and Appliance Co., St. Louis County, Missouri.

During the past year, this butane dealer has developed a number of special services which, in some instances, are more profitable than the sale of butane systems for home use. Among these are tourist cabin heating and water heating, butane systems for sandwich shops and hamburger stands, specialized gas equipment for other types of heating, and finally, blowtorches and cutting-flame equipment for plumbers, sheet metal and metal-working firms. During 1940, the Butane & Appliance Co. sold more than 50 torches for gas use in welding, soldering, and metal heating.

To swiftly show the capabilities of butane gas, Mr. Baur recently has installed Algas conversion carburetors on his three tank trucks, and a 30-gal. butane fuel tank in a special compartment behind the cab. A special take-off valve from this tank permits small amounts to be piped to various appliances for demonstration use. Now, all the company trucks operate with, as well as distribute, butane gas, and the interest of prospects in this motorized use of the fuel often is the "clincher" which convinces them that it is applicable to their own businesses.

This 30-gal. tank on this truck has a "takeoff" valve for demonstration purposes.

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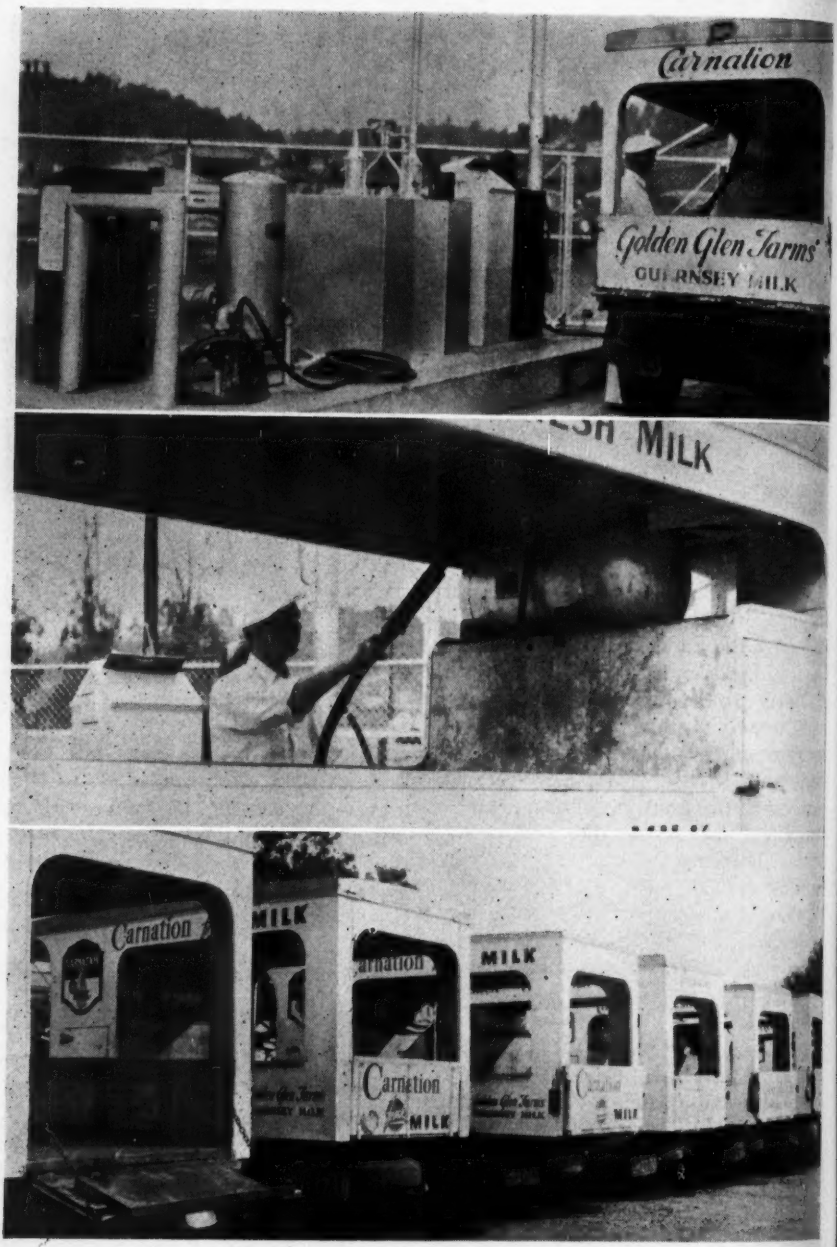
Butane Transportation Trucks Represent Large Investment

Representing an investment of $90,000, Carl Painter, Dos Palos, Calif., is operating a fleet of seven butane transportation trucks in the San Joaquin Valley. Their capacities range from 1910 gals. to 6055 gals. of butane.

The 10 employes include drivers and mechanics. Paul Burk is business manager.


Carnation
Golden Glen Farms'
GUERNSEY MILK
MILK
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MILK

Delivery Fleet of 135 Trucks Converted to Burn Butane

EXHAUSTIVE tests recently made by the Carnation Milk Co., Los Angeles, have demonstrated the all-round efficiency of butane for light motor trucks used in stop-and-go city delivery. These tests were made over a period of eight months by W. J. Thompson, superintendent of transportation for the Carnation company.

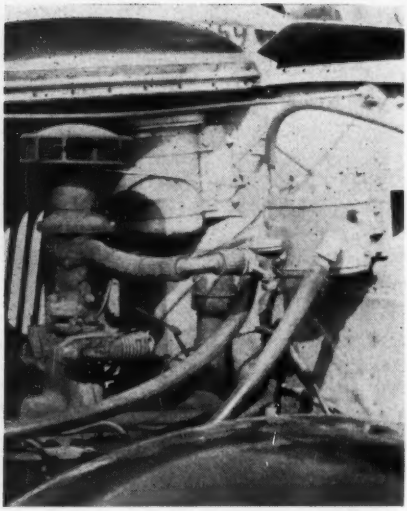
The Carnation company installed butane for trial purposes in 1939. Preliminary tests were made for one year. With these entirely successful, the conversion of the company's Los Angeles milk delivery fleet was begun. Carburetion equipment, manufactured by Roadmaster Products Co., of Los Angeles, was chosen as standard for the fleet.

The Carnation company operates about 200 trucks out of the Los Angeles branch. At the present time, 135 of these have been converted to operate on butane. Soon the number of butane installations will total more than 150. Mr. Thompson has supervised all installations, keeping a close check on truck operation. With complete records at his disposal he states, "After the continued operation of 135 wholesale and retail delivery trucks on butane we have had enough experience to know that we have greatly reduced our costs for fuel, for oil and for repairs and upkeep. Cracked motor blocks, formerly frequent, have been eliminated."

"On our butane equipped trucks we find no crank case dilution and the viscosity of the motor oil is actually increased with use, as our oil analyzer proves. This increased viscosity gives the oil so much better clinging and cushioning ability that we are able to operate on the same oil up to 3000 miles before draining the crankcases. In a number of cases oil has been used even longer." Fords, Chevrolets and White trucks are used.

Only 28 of the butane equipped trucks are used for wholesale work. These are 1½-ton Fords making long hauls daily. Their operation is just as economical. The rest of the fleet is used daily for milk delivery throughout the city, each covering about 40 miles each day. Commenting on these facts Mr. Thompson added, "Most important of all to us is the fact that our 'trouble calls' are now practically nil. Just about all the trouble calls

OPPOSITE PAGE (top): Carnation Milk Co.'s butane filling station. The "Island" with dispensing equipment serves fleet of light and heavy duty trucks. Storage tank is underground. CENTER: Butane tank, easily accessible, takes but a few minutes to fill. One filling lasts for two days. BOTTOM: A few of the 135 butane-equipped delivery trucks lined up after the day's run. Following conversion to butane, repair and operation costs went down and trucks lasted longer.



Under-the-hood view of butane regulator and carburetor on Carnation milk delivery truck. Hot water from radiator passes through long rubber hoses to regulator fastened on body. Vapor hose is shown connecting regulator and carburetor.

we now receive are from drivers who sometimes forget to fill the fuel tanks."

The use of butane for short haul, stop-and-go driving has been considered uneconomical by many. Mr. Thompson's experiences help to disprove this theory. "The city delivery trucks average about 150 stops a day. When trucks operate on gasoline, a certain amount of wet gas escapes to wash the cylinders down, hindering lubrication and diluting the cylinder oil. When butane is used as a fuel, there is no escaping wet gas; therefore, no lack of lubrication when motors are accelerated for starting. Butane is equally valuable for morning starting, when lubrication is important.

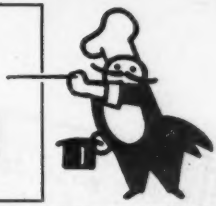
"As for the lack of carbon and sludge in the motor, I can say that after fueling one Ford B motor for an entire year with butane, we tore the motor down to study its actual condition. The amount of carbon present was much less than usual; metal wear was much less than normally found, and we were gratified to discover that the motor contained neither gum nor sludge in any of the places it is usually found."

An unusual feature of the Carnation fleet is the operation of 24 White Horse trucks on butane. Although motors on these trucks are air cooled, they have been successfully converted to butane operation. This is done by running the exhaust vapors, instead of hot water from the radiator, through the heat exchanger.

Records show that mileage for butane equipped trucks is about the same as gasoline. On some trucks mileage is better, on others it is less. Repair costs on trucks are definitely less. Mr. Thompson reports that the Roadmaster carburetors have proven satisfactory on each of the different makes of trucks in operation. He states that he likes their simplicity and ease of operation, and that cleaning, which is seldom necessary, takes only about 10 minutes.

Mr. Thompson is enthusiastic about butane as a motor fuel. He believes that, "butane, when used properly, with the right equipment, will greatly reduce the costs of fleet operation and upkeep, and actually increase the life of trucks."

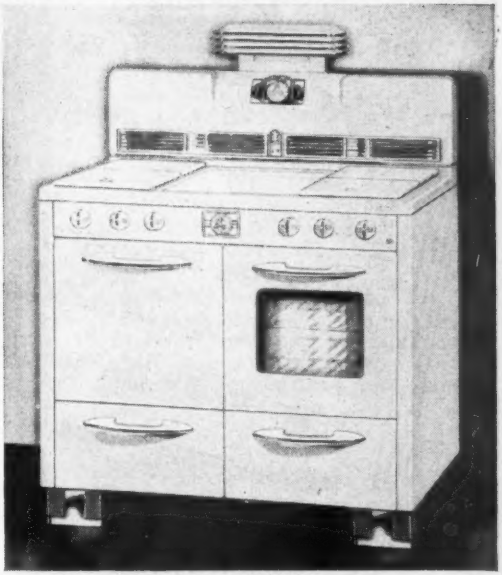
THE EASY WAY TO SELL MODERN LP-GAS COOKING!



YOU'LL win new converts in a hurry with this brilliant new Magic Chef Gas Range. Your prospects will be interested to hear about its many features for quick, cool, economical cooking.

They'll be charmed by its "Clearview" glass-door oven and the famous Magic Chef Swing-out broiler. Fast, non-clog top burners adjust to low simmer. Hi-speed oven is insulated, and heat controlled by Red Wheel Regulator. Easy to clean—easy to use.

This is just one of many new Magic Chef models in every price class, ideally suited for LP-Gas, developed by American Stove Company's Research Laboratory. Some franchises still open. Write today for details.



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Magic Chef

THE GAS RANGE WITH THE LIFETIME BURNER GUARANTEE

THIS COUPON MEANS MORE BUSINESS . . .
Send it today!

AMERICAN STOVE COMPANY, Dept. B-7,
4301 Perkins Ave., Cleveland, Ohio
Please send me details of the complete Magic Chef line and merchandising helps available.

Name .....

Company .....

City ..... State .....

The most important unit in any system for the use of Liquid Petroleum gas is the Regulator....RELIANCE pioneered by designing and manufacturing the first dependable, automatic, positive, indicating Regulators for LPG service. .....The expansion of the industry has been largely due to the availability of the proper type of RELIANCE REGULATOR for every user of Liquid Petroleum Gas--domestic, commercial and industrial.

REGULATORS YOU CAN RELY ON
RELIANCE
SINCE 1931
TRADE MARK

RELIANCE REGULATORS

Reliance Regulator Corporation
1000 Meridian Avenue
Alhambra, California

PRODUCTS

LP-Gas Meter

Sprague Meter Co., Bridgeport, Conn.
Model: No. 0.

Description: This is a new meter designed exclusively for the purpose of measuring liquefied petroleum gases. The No. 0 follows Sprague's basic design, and combines capacity with compactness. It is a small meter made of rugged iron castings, yet weighing but 18 lbs., and is equipped with sturdy arms on the back for ease in installation, with the inlet connection optional, either top or side. The specially processed diaphragms are internal, completely enclosed and sealed. The index box is a part of the top casting, and the index is supplied according to specifications.

Specifications: Capacity per hr.: ½ in. water column, propane 60 cu. ft., butane 55 cu. ft. Dimensions: height 10 in., width 6⅝ in., depth 5⅞ in. Bulletin 23A is now available upon request.

◆ ◆

Transport Truck

Dallas Tank & Welding Co., Inc., Dallas, Texas.

Description: This de-luxe trailer model for transporting butane is a twin mounted tank, being 42 in. diameter by 24 ft. long, each holding 1500 net gallons, or total of 3000 net gallons. The two tanks are covered completely by 12 gage shell with air spaces for ventilation, and drop skirting, with streamlined back. All fittings enclosed. Tanks are not exposed to sun.

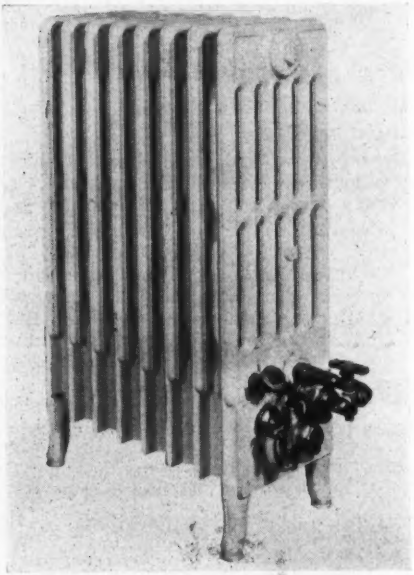
◆ ◆

Gas-Fired Steam Radiator

American Radiator & Standard Sanitary Corp., P. O. Box 1226, Pittsburgh, Pa.

Description: This gas-fired steam radiator has a thermal control that gradually throttles down the gas and operates automatically on temperature rather than steam pressure. A special gas connection permits the main inlet orifice to be changed to accommodate liquefied petroleum, natural and manufac-

tured gas without taking apart the radiator assembly. The venturi burner design insures proper mixture of gas and air; provides equal heat distribution and odorless operation. Thermostatic gas pilots supplied on special order. Screw nipples create tight and permanent joints between sections and insure alignment of radiator sections.



◆ ◆

Transport Unit

McNamar Boiler & Tank Co., Tulsa, Okla.

Description: This transport unit is of primary twin cylinder design and built of high tensile steel in order to reduce weight so that the maximum load, plus weight of unit will still conform to State road limits regulations. Minimum tensile strength of steel is 75,000 lbs.; butane capacity, 3000 gals., or pay load of 13,500 lbs.; heads for butane tank are 5/16-in.; shell, 7/32-in.; transport built to 125 lbs. working pressure under A.S.M.E. Code, U-69. Transport weighs 10,100 lbs.

and tractor weighs 5900 lbs. The transport for propane is built for 200 lbs. working pressure, with 7/16-in. heads and ⅜-in. shell. Unladen weight, 14,000 lbs. Large openings, properly located, permit rapid unloading. Gallonage range for butane transports is from 2500 gals. to 4500 gals.; for propane, 2500 gals. to 3500 gals.

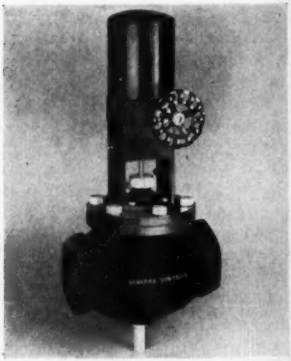
◆ ◆

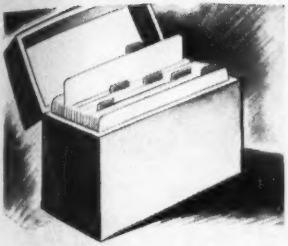
Manual Reset Valve

General Controls Co., Glendale, Calif.

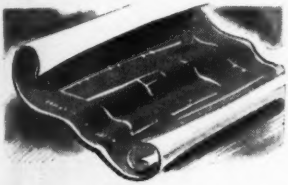
Model: Series MR-1-2.

Description: To fulfill an increasing demand for a manual reset valve which affords extremely safe and positive control of water, air, gas, steam and oil, in most all industrial applications, is offered this new Series MR-1-2 Valve. Upon current failure, the valve closes; the valve cannot then be opened to the flow unless current is available and then only by manually resetting the valve.





DOMESTIC SUPPLY METHODS — Sales methods, marketing information, construction of plant facilities, are available to domestic suppliers who are customers of Shell.



INDUSTRIAL USES — Shell engineers are thoroughly experienced in all industrial heating application such as heat-treating and high temperature work. They are prepared to help you in design of new equipment, development of new processes.

COMMERCIAL USES—Shell engineers have helped develop processes for the use of liquefied petroleum gas in such widely varied services as gas enrichment, internal-combustion engine fuel, hotel kitchen and dining car fuel, etc.

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THE RANSOME Back Pack Outfit has been very effectively employed by the U. S. Forest Service in the control of forest fires. Operating on butane or propane, a match lights the torch; will not extinguish under any weather conditions, or by violent swinging.

This outfit is also used by railroads and industrial plants for weed burning; farmers use it for burning out irrigation ditches and for delousing poultry houses. It is highly efficient—Forest Service tests indicate that a fire fighter can start thirty fires in the time it takes to light a kerosene torch.

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RESEARCH

• **BUTANE-PROPANE *News* wishes to keep its readers informed regarding technical and practical advances concerning research, manufacture, development, and transportation in the liquefied petroleum gas field. In this column will be found a resume of recently published articles, papers, bulletins and books dealing with the industry's various phases.—Editor.**

Chemical Species—Translated from Jean Timmermans' revised French manuscript by Ralph E. Oesper, of the University of Cincinnati. This book, in the field of chemistry, is compared in importance to Darwin's "Origin of the Species" in the progress of biology, for "the concept of species plays just as important a role in chemistry as it does in the biological sciences." Scientific though it is, the work has much of the allure of a novel because of the historical background that leads the reader into every subject touched upon. The book has a total of 26 chapters, divided into four parts as follows: "Definition of Chemical Systems," "Pure Materials," "Determination of Physical Constants," and "The Way to Find in the Literature the Best Method of Purification and the Most Probable Value of the Constants of Pure Materials," with examples and applications. Published by Chemical Publishing Co., Inc., New York City, 1940. Price $4.

Phase Diagrams of Methane and Ethane Hydrates—O. L. Roberts, E. L. Brownscombe, L. S. Howe and H. Ramser. *Petroleum Engineer*, March, 1941, pp. 56-62. Phase diagrams have been determined for the methane-water and ethane-water systems in the temperature range from 10° to 60°F. (—12.2° to 15.6°C.). The equilibria studied included: (a) vapor-liquid hydrate; (b) Vapor-ice hydrate; (c) liquid-liquid hydrate. Compressibility factors for ethane vapor have been determined in the pressure range from 5 to 35 atmospheres at 32° and 54°F. (0° and 12.2° C.). Heats of formation of methane hydrate and of ethane hydrate from vapor and water and from vapor and ice have been calculated from the foregoing equilibrium data correcting for the deviation of the gases from the ideal gas laws. The composition of the hydrate has been found to be $CH_4.7H_2O$ and $C_2H_6.7H_2O$.

Gas Absorption in Bubble-Cap Columns—F. J. Walter and T. K. Sherwood. *Industrial and Engineering Chemistry*, April, 1941, pp. 493-501. Data are presented on (a) absorption of ammonia and carbon dioxide from air in a single-plate 18-in. column with seven 4-in. caps, (b) desorption of carbon dioxide from water and from aqueous solutions of glycerol in a 5-in. square column with one 3½ in. cap, (c) absorption of propylene and isobutylene from inert gas at 3.14 and 4.49 atmospheres in a small 2-in. column with a segment of a 2-in. cap, using a heavy naphtha, a gas oil, and a heavy gas oil-lube oil mixture, (d) rectification of ethyl alcohol at atmospheric pressure in the 2-in. column, and (e) humidification of air at 1 to 3.72 atmospheres in the same column. Relatively large Murphree vapor efficiencies of 69 to 92% were obtained for absorption of ammonia, humidification of air, and rectifica-

tion of alcohol. The corresponding efficiencies were 0.65 to 4.2% for absorption and desorption of carbon dioxide from water and glycerol solutions, and 4.7 to 24.0% of absorption of the olefins in the three oils. The results are correlated approximately by an empirical equation relating the Murphree vapor efficiency to the gas solubility, the total pressure, the liquid viscosity, the shot width, and the effective liquid depth on the plate. The major variable is gas solubility, and the results indicate that different efficiencies should be used for each component in the design of absorbers for natural gasoline and refinery gases.

Gas Fired Units Solve Many Industrial Heating Problems — W. N. Blinks. *Heating, Piping and Air Conditioning*, April, 1941, pp. 217, 218. While the author speaks primarily to men interested in sales of gas to industrial and commercial users, his picture of the place of gas fired unit heaters for solving industrial heating problems of many kinds contains a number of points of interest to plant engineers and others who are concerned with selection and purchase of the equipment. As presented here, the paper describes a number of applications where gas-fired equipment may be used to advantage in the plant, with particular reference to the problems arising from the national defense program, in which so many plants are now in some manner engaged.

Revised Charcoal Adsorption Test Adopted by Committee—H. L. Oder. *Oil and Gas Journal*, April 24, 1941, pp. 54-56. The gas-testing committee of the N.G.A.A. has completed the revision of the charcoal adsorption test code and with the exception of the activation test has been adopted by the committee. Changes in the code and method of testing are outlined.

The Thermal Properties of Lighter Hydrocarbons—G. G. Brown and D. E. Holcomb, *Petroleum Engineer*, April, 1941, pp. 34, etc. A practical method of determining the effect of high pressure on the enthalpy and entropy of natural gases.

Flow of Gas Through Pipe Lines—R. Vittinghoff and H. Vittinghoff, *American Gas Journal*, March, 1941, pp. 29-31. In trying to determine whether a pipe line of given length and diameter could transmit a specified quantity of gas per hour it developed that when the initial pressure was 800 lb. per sq. in. the terminal pressure would be either 350 lb., 250 lb., or even less than atmospheric pressure, depending upon which of several well-known formulae was used. These startling discrepancies caused the authors to review at length the published information of pipe line flow. The results of this study are submitted in this paper to those interested in problems of this nature.

Vapor Pressure Determination Affected by Many Variables — F. M. Allen. *Oil and Gas Journal*, April 24, 1941, pp. 50, etc. The technical committee of the Natural Gasoline Association of America, through the research and routine laboratories of various companies, investigated all work done on vapor pressures since the adoption of the Reid method. Also all other recent data pertaining to the magnitude of errors which can be attributed to the various specifications and procedural steps were assembled.

Methods of Calculating Flow of Liquids in Pipes— E. Kemler. *Industrial Power*, March, 1941, pp. 50, etc. How to determine pressure drop in a pipe length when the amount of fluid to be handled is known; how to figure the flow that can be handled by a pipe with a given pressure drop; how to find the friction factor; how to use the Reynolds number—are explained in this article.

Personnel of Natural Gasoline Companies — *Oil and Gas Journal*, April 24, 1941, pp. 75, etc.

Natural Gasoline Plants in the United States—*Oil and Gas Journal*, April 24, 1941, pp. 92-98.

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GASES

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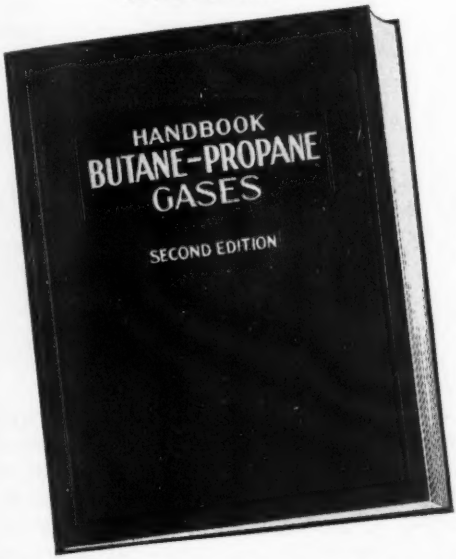

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BUTANE-PROPANE *News*

1709 West 8th Street, Los Angeles, Calif.

Domestic Market Development

MY assignment is to talk to you about the development of the domestic market for liquefied petroleum gas. As a representative of your "Country Cousins," I am happy to report that the liquefied petroleum gas or "bottled gas" business enjoyed in 1940 its most successful year. During this year 325,000 users were acquired by our industry. This brought the total number of domestic users of liquefied petroleum gas to about 1,125,000 homes. Our industry in 1940 probably accounted for appliance sales amounting to well over $20,000,000. The volume of bottled gas sales in 1940 has been estimated at 128,000,000 gallons which is equivalent to about 117,500,000 therms, representing an annual average consumption per customer of somewhat over 100 therms. To your industry these figures probably do not sound particularly impressive. On the other hand, when you consider that this volume of gas was sold at an average selling price at somewhere in the neighborhood of 35 cents per therm, I believe you will agree that our dollar volume of business is beginning to be of important magnitude.

A. B. CAMERON

The real growth of the industry did not start until about 1928, and new domestic bottled gas users have been acquired at an increasingly rapid rate every year since.

During the past 12 years the cost to the consumer for installing bottled gas service has decreased from more than $100 to the now commonly used figure of $9.75. The average selling price of liquefied petroleum gas to the domestic consumer has been cut in half, and this, along with the marked increase in appliance efficiencies, has made it possible for homes located beyond the gas mains to enjoy the convenience of gas service at a cost within the reach of all. In 1928 only a handful of people were engaged in the bottled gas

● **A. B. Cameron, manager, Philgas Division, Phillips Petroleum Co., Detroit, delivered the accompanying paper before the Midwest Gas Association at its annual convention in Minneapolis on April 15, 1941. It recites the history and development of the liquefied petroleum gas industry since 1928, discusses sales and service problems; describes various distribution methods; outlines the importance of small town outlets to the advancement of the industry; explains how satisfied users have contributed to growth; cautions against entering the field inadequately financed, emphasizes the need for specially trained organizations and appropriate equipment; and urges friendly, constructive cooperation between gas utility companies and dealers selling beyond the mains. Abstract by BUTANE-PROPANE *News*.—Editor.**

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business. I would estimate that our industry today employs man power equivalent to the full time efforts of at least 10,000 people.

It has been authoritatively stated that our industry has undergone a more rapid rate of expansion than has any other industry during the same period of time. This comparison does not exclude the business of air line transportation, electric refrigeration, or any other business commonly considered to occupy an outstanding position with respect to rate of growth.

Should Be Allies

It has long been the feeling within our industry that the bottled gas business is, and should be so considered, an ally of the "pipe line" gas business. Our two industries furnish a common service to their respective communities. Their combined efforts make gas the one convenient fuel universally available. The activities of the two industries are supplemental rather than competitive. Our real competition is from the same source. We draw upon a common source of supply with respect to appliances and in marketing those appliances we encounter the same problems.

There are adequate reasons for the contention of our industry that the city gas companies should aid and assist their "Country Cousins." I sometimes wonder whether your industry realizes that the greatest concentration of bottled gas users lies immediately beyond the gas mains where any expansion you may anticipate must necessarily take place. Both industries can benefit by presenting a combined front to our common competition. I know that we in the bottled gas industry have learned by studying the experience of your industry. It is even conceivable that we in our industry have stumbled onto some procedures and methods which could be helpful to your industry.

Perhaps it would be of interest for me to describe the various distribution methods employed and to attempt to outline the principal advantages and disadvantages of these various methods. It should be understood that different types of bottled gas markets call for different methods of distribution. One is the method under which gas deliveries are made to the customers' homes in replaceable cylinders. The other general method employs tank truck delivery to permanent storage at the user's home. There are numerous variations of these two general types of distribution, but all of them can be classified under one heading or the other.

When Tank Trucks Are Used

The tank truck delivery method is used only by a few companies in this part of the country, but since various operations of this type have received considerable publicity, the advantages and disadvantages of this system should be noted. Generally speaking, the tank truck delivery system is employed either in areas where the concentration of users is very high or in areas where it is possible to sell gas for house heating and the consumption per customer

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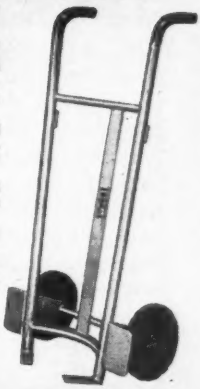

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is correspondingly high. The tank truck delivery method may employ either above- or below-ground storage. Below-ground storage is obviously more expensive both from the standpoint of original cost and maintenance. In the Southwest much of the distribution is through below-ground storage cylinders. This is because in the milder climate encountered in that part of the country butane is used as a fuel as contrasted with propane, which, for numerous reasons, has a wider use in this area. The below-ground butane installation makes use of heat transfer from the earth to the contents of the cylinder to vaporize the gas. The physical characteristics of butane are such that it, alone, cannot be used successfully in the colder climate, even though stored underground.

The tank truck delivery method of distribution may employ either large or small storage cylinders with capacities varying from about 25 gals. to over 250 gals. The use of smaller size cylinders requires more frequent deliveries and higher delivery cost, but permits a lower cylinder investment. Regardless of the exact details of the storage equipment employed, the tank truck delivery method is ordinarily pretty well confined to serving limited geographical areas.

Various Methods Employed

There are several variations of the replaceable cylinder method of distribution, the most widely used employing two cylinders, one from which the house service line is supplied, while the other is held in reserve. When the gas is exhausted from one cylinder, the reserve one is cut into the line either manually or automatically, depending upon the type of regulation employed. The distributor replaces the empty cylinder upon receipt of an order from the customer. Another plan is the "replaceable single cylinder system." This contemplates the installation of only one cylinder on the customer's premises and necessitates the assumption, by the distributor, of the responsibility for reading the meter which is installed as a part of the system and for replacing the cylinder before it has been emptied. Under this plan the customer ordinarily pays for his gas on the basis of the meter reading, as contrasted with the two-cylinder system which usually does not include a meter and which contemplates gas sales in cylinder lots.

"Self-Service" Explained

Still another variation of the cylinder distribution method is the "self-service" system which employs two small portable cylinders, each of which contains several weeks' supply for the average cooking consumer, in connection with a regulating device which automatically switches over from the empty to the full cylinder. This plan requires the user to assume responsibility for the gas supply and to secure replacement cylinders from a nearby local dealer. It obviously is designed to minimize cylinder investment and to eliminate the cost of delivery to the consumer.

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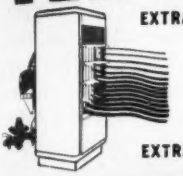

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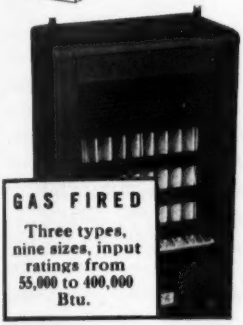

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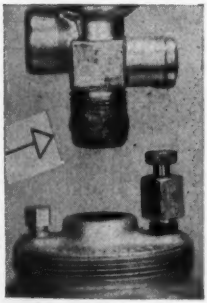

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standing of the bottled gas picture, it is probably necessary to consider the three steps entering into the distribution of the product. The first is from the production point to the distributor's bulk station. Today, propane and butane are produced not only in the oil fields of the Southwest, but also at numerous refineries throughout the country.

The second step in distribution is from the distributor's bulk station to the dealer. This step is sometimes omitted with retail deliveries taking place directly from the bulk station, but ordinarily a bulk station operator must seek the additional sales, service, and delivery assistance of dealers in order to secure the volume required to justify the bulk station investment.

The third step in distribution is from the dealer to the retail consumer.

Obviously, there are many ramifications to the distribution picture. It should be noted that there has been a tremendous expansion in the distributing machinery of our industry and efforts are naturally directed toward elimination of as many of the distribution expenses as possible.

The Public Now Accepts LP-Gas

Today, there is beginning to be a general public acceptance of the bottled gas idea and although merchandising problems still exist they no longer seem so difficult of solution.

The geographical handicap is, of course, the cause of most of our merchandising problems. Sales man power is less effective for us because of the travel time required. A dealer contact man spends the majority of his time non-productively unless he is carefully supervised. A retail salesman is in the same fix. Picture if you will your city mains reaching one potential user for every mile or two of mains and you will get the general idea.

Some of the Problems

The retail sales manager cannot hold daily meetings with his salesmen, neither can he easily arrange for such things as group demonstrations. The difficulty of getting prospective users into contact with our modern appliances is one of our principal stumbling blocks.

Those of you whose memory goes back a good many years can remember some of the problems you encountered when all of your prospects were using coal, wood and kerosene, and had to be sold the gas idea from scratch. Our industry is still going through that same experience and although we are hoping, and expecting, that at some time in the future the suburban and rural public will turn just as naturally to bottled gas as does the city dweller to city gas, we still have a lot of work to do before this happy state of affairs is realized.

Suburban and small town dealers and appliance outlets play a very important part in the bottled gas merchandising and distribution picture. Hardware stores comprise over half of the bottled gas dealerships, with specialty shops, plumbers, and general stores also counting for a considerable per-

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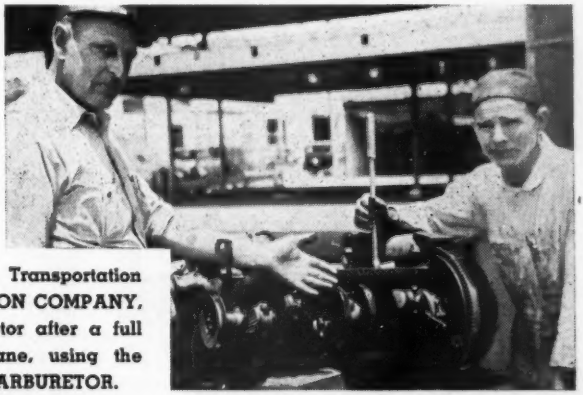

W. J. THOMPSON, (left), Transportation Superintendent of CARNATION COMPANY, when he inspected this motor after a full year's operation with butane, using the ROADMASTER BUTANE CARBURETOR.

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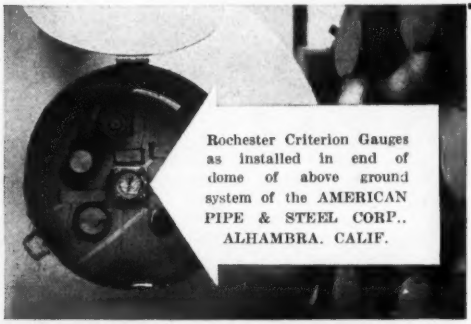

Rochester Criterion Gauges as installed in end of dome of above ground system of the AMERICAN PIPE & STEEL CORP., ALHAMBRA, CALIF.

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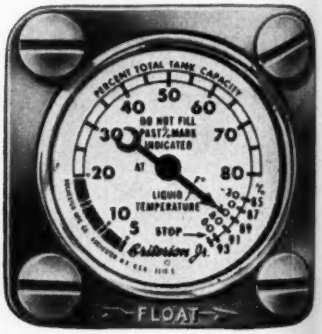

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centage. Small town dealers have a great deal to recommend them. They are usually well established, widely acquainted, and enjoy the confidence of the rural and small town clientele. There are many fine small town bottled gas outlets and our industry would have a difficult time existing without the aid and active assistance of small town merchants.

Small Dealer Carries Many Lines

There are, however, certain fundamental characteristics of small town dealerships which make our merchandising job more difficult. First and most important is the fact that the small town dealer is normally interested in a large number of different types of merchandise and sales activities and, unless he receives constant attention, he devotes only a very limited portion of his time to bottled gas activities. Because of the variety of his interests, it is difficult to persuade him to learn or practice the specialty selling required to produce volume sales for our industry. Frequently, he cannot see the necessity for continuous outside sales activity and even when he does he can devote only a limited time to the supervision of a sales force. This, of course, means that salesmen turnover is high and that continuous effort is necessary on the part of the distributor's salesmen if an active retail sales force is to be kept in the field.

We also have a large number of service problems to contend with. A rural customer, while perhaps not so demanding as the city gas user, still requires prompt and thorough attention to appliance service complaints. A bottled gas dealer with customers spread over an area of hundreds of square miles finds that appliance servicing is an expensive proposition.

It may be worth observing that the small town or rural housewife considers her cooking appliance as a most important part of her household equipment. Her new bottled gas range is usually a source of considerable pride and pleasure to her and the word-of-mouth advertising of satisfied bottled gas users has had more bearing on the rapid expansion of our industry than has any other single factor that can be named.

Rural Housewife Uses Oven Most

It is probably well recognized that the small town or rural housewife makes more use of her oven than does the average city housewife. This brings up some problems which are not always easy of solution. Cooking habits acquired in using coal and wood ranges are not discarded immediately and by far the most prevalent cause of customers' complaints is traceable to this source. The automatic oven heat control is, of course, a complete mystery to most new bottled gas users and we find that it is essential to go to some length in explaining the use of the heat control and in checking up to see that proper utensils are available. In those areas where we have a high concentration of customers, we have experienced material benefits by employing home service representatives to call on each new

user for the purpose of explaining and demonstrating the new appliances.

By and large, the problems of our industry are probably not greatly different from those which have faced your industry over a period of years. We are going through the same experiences which you encountered 30 years ago, but in addition we are probably encountering much more intensive competition from all sides than existed during the period when city gas companies were concentrating on acquiring new customers. As is the case with many relatively new industries after they have enjoyed sufficient growth to attract the attention of outsiders, our industry has frequently attracted the attention and participation of individuals and companies who did not trouble to make a thorough study of the economic aspects of the business before jumping in with both feet.

Some Misconceptions Explained

There are two very common misconceptions with respect to the bottled gas industry. The first is that because liquefied petroleum gas sells at the production source for a very low price and to the retail consumer for a relatively high price, the business must necessarily be a source of high profit. The other common misconception has to do with the capital requirements of a bottled gas business.

I would like to cite several facts designed to remove the above misconceptions. First, with respect to prices, it is probable that the cost of liquefied petroleum gas at the source of production contributes less than 10% to the cost to the ultimate consumer. If this is so, it follows that even if the cost of the fuel were zero the distributor could not appreciably alter the cost to the retail consumers. Just as is the case with your own industry, the various costs of transporting and delivering the product and of rendering service to the consumer represent almost the entire ultimate cost.

Ample Capital is Essential

Now with regard to capital requirements, it is unfortunate that many people have gone into the bottled gas business believing that in some mysterious way income derived either from the sale of gas or appliances, or both, to existing customers would provide the capital for expanding the business. Such, unfortunately, is not the case, as every new bottled gas operator inevitably discovers.

Any one considering entering the bottled gas business would do well to consider these facts—first, a bulk station from which to distribute the product costs from $10,000 to $20,000; second, installation and delivery equipment and tools cost from $5,000 up; third, gas utilization equipment for the replaceable cylinder type of operation will cost from about $25 to $50 per customer depending upon the type of service supplied; fourth, the company planning to distribute bottled gas in any sort of major manner must devote thousands of dollars to inventories of equipment and appliances, and to working capital; fifth, the cost of acquiring

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The proper design and fabrication of Tanks for Propane Storage is dependent upon the knowledge and experience of the fabricators. MUCH DEPENDS UPON THEIR SPECIFICATIONS FOR MATERIALS AND THEIR CHOICE OF PROCEDURE FOR HANDLING THEM. Because Downingtown have had experience in building tanks for this service, we do know the answers to those basic problems. Let us help you with yours.

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WELDED and RIVETED PRODUCTS

customers is relatively high and, if capitalized, amounts to a major item. If it is considered as an expense, it is not usually offset by the commonly used installation charge; sixth, even with an experienced management, a bottled gas business ordinarily requires several years to reach a profit position.

Dealers Should Be Specially Equipped

There is one other rather common misconception concerning the bottled gas business. This is that a company engaged in marketing operations bearing some similarity to those of bottled gas can, by utilizing its existing organization, render bottled gas service at a lower cost than can a company set up only for bottled gas distribution.

This idea has occured to various types of companies, notably to those distributing kerosene and fuel oil to the rural trade and to companies distributing appliances through small town dealer organizations. There have also been some cases where city gas companies have conceived that they were properly equipped to engage in the distribution of bottled gas.

Regardless of the type of business under consideration, a little reflection will result in the following conclusions:

1. That existing bulk station facilities suitable for handling liquefied petroleum gas could also be utilized for the existing business, and that, generally speaking, it is necessary to add to those facilities in order to add liquefied petroleum gas to the products or services already handled.

2. That installation equipment used in the existing business cannot, if already efficiently used, be devoted to the bottled gas business.

3. That specialized types of delivery equipment are required in the bottled gas business.

4. That service and sales personnel trained in one type of business must be trained again, almost from the beginning, in bottled gas services.

5. That a sales organization handling an existing type of product or service cannot effectively compete on a part time basis with an organization devoting full time and energy to promotion of bottled gas business.

6. That the bottled gas industry is highly competitive within itself.

7. That management of a substantial bottled gas activity is a full time job.

8. That an appliance line suited to city gas trade is not necessarily suited to the rural trade and that the warehousing of appliances for use with city gas does not necessarily produce any lower cost of handling the bottled gas appliances.

9. That being established in one line of business does not necessarily insure that the rural public will automatically seek your organization when in the market for bottled gas.

10. That the suburban, and especially the rural, consumer, ordinarily prefers to deal with a local merchant as compared to an "outside" company.

In spite of the growing pains which our industry has been forced to undergo, it is a fact that the industry is today on a stable basis. This happy situation is probably due partly to the fact that those same characteristics which make

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You're not up on progress of the industry until you have investigated Algas' sensational new Multi-Jet Carburetor. It's "Two-Step Carburetion" . . . the latest thing from Detroit . . . adapted to butane-propane requirements. Breaks all records for power, quick starting, economy! Write for literature.

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SEND FOR THIS NEW
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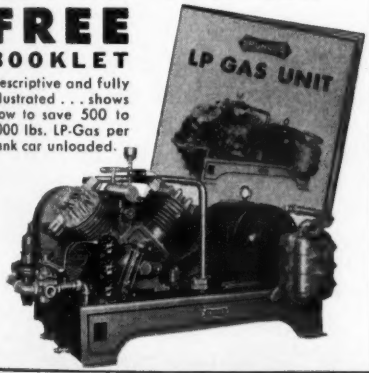
Descriptive and fully illustrated . . . shows how to save 500 to 1000 lbs. LP-Gas per tank car unloaded.



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Yes - IF you know how!

Nothing can take the place of experience in ANY specialized field — and marketing Butane and Propane IS DEFINITELY a specialized field. That's why you'll do better with Skellyfuel. We know the angles to successful and profitable marketing of LPG, because we have and still are successfully and profitably marketing it. Our experience saves you the time and money of learning those angles the hard way.

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gas so desirable in the city household are equally compelling in small town and rural homes. Another factor lending stability to the industry is that the leaders of the industry are large, financially successful companies in other fields who have learned that sound operation can produce reasonable profits in the bottled gas field. The industry is proving itself worthy of being considered a close ally of the gas utility industry.

Two Industries—One Onjective

I would feel that I were missing a golden opportunity were I not to take this occasion to emphasize why I feel that our two industries can cooperate to their mutual benefit. I believe that you will all agree we are working to a common end, i.e., to make the public gas-minded. Should not you, in your advertising and in your sales contacts, always make it a point to remind Mrs. City Dweller that sometime she may become Mrs. Country Dweller, but that such a move will not prevent her from enjoying the full conveniences of gas service? We find many times that what should be a new customer for us has been lost, because nobody bothered to explain that gas is universally available. As a matter of fact, your electric range competitor uses this as an argument for the purchase of an electric range in the city.

Cooperation can be easier and closer if, instead of considering the bottled gas distributor as a poacher, you will remember that his natural habitat is in the outlying section and that he seldom wanders into your hunting ground. If the bottled gas distributor occasionally steps on your toes by serving a customer located right on your gas main, remember that when you make a main extension you are invading what this distributor has been accustomed to consider as his territory.

I know of some city gas companies which have been most generous in assisting bottled gas distributors in their area. Such companies have made it a practice to turn over to the bottled gas distributors leads on customers who were moving to the country. They have offered the use of their display floors in order to familiarize city people with bottled gas service and they have cooperated with the bottled gas distributors on such activities as cooking schools, service schools, advertising campaigns, and the like.

Again, remember that main extensions need not be made until customer saturation is high, provided the bottled gas distributor is serving these customers.

Many of you have already doubtless discovered that a main extension can quickly be put on a profitable basis where bottled gas activity has been on an intensive scale for a period of time previous to the main extension.

◆ ◆

100-Ton Butane Shipment Sets Sail for South America

The City of Flint, Pacific Republic's Line freighter, docked at Long Beach recently from Seattle to load 400 tons of general cargo for shipment to South America. The shipment included 100 tons of butane gas.

AMERICAN
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American High Pressure Tanks are made under strict CIAC; API-ASME; API Code requirements . . . skid, storage, mobile tanks and household bottles. Investigate American Safety, Efficiency and Dependability before you buy!

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will help increase your sales

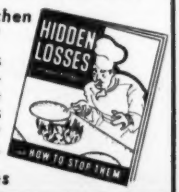
FOR DOMESTIC SALESMEN

"More Income from Gas Ranges"

How can your salesmen sell more gas ranges? This manual shows simply, graphically, convincingly. Thousands of salesmen have greeted it with enthusiasm, are putting it to effective use.

FOR COMMERCIAL SALESMEN

"Hidden Losses in Your Kitchen and How to Stop Them"



The latest developments in commercial gas cooking equipment are brought together in this manual, now used by many bottled gas dealers.

Write for free copies

ROBERTSHAW THERMOSTAT COMPANY
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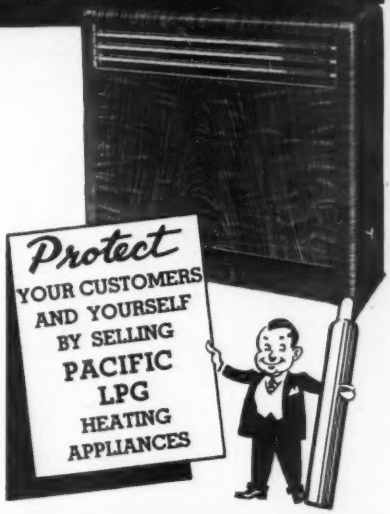
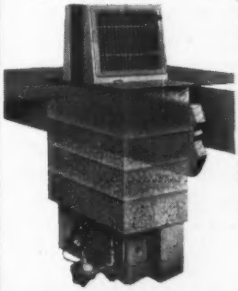


★ **Far-sighted LPG dealers handle PACIFIC heating appliances exclusively. They know that PACIFIC offers a complete line especially designed for use with bottled gas by engineers who understand LPG requirements thoroughly. They know, too, that this is important for their own success and their customer's complete satisfaction. A few desirable territories are open. LPG dealers who are looking ahead are invited to write for complete details NOW!**



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GAS RADIATOR CO.
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New Law For Oklahoma

REGULATION of the liquefied petroleum gas industry in Oklahoma will be transferred, August 29, from the state corporation commission to the state fire marshal under H.B. 390 passed by the recent Oklahoma legislature. The new law does not become effective until 90 days following adjournment of the legislature.

The act repeals the corporation commission regulation act passed by the 1939 legislature. The state fire marshal will be ex-officio state liquefied petroleum gas administrator, with authority to appoint two inspectors at salaries of $1800 each. These inspectors must have had 3 years' experience in the LP-Gas industry and in fire prevention work.

When the new law becomes effective the state fire marshal will call a hearing for the purpose of formulating and adopting rules and regulations for the safe handling of LP-Gas. These rules must be in substantial conformity with standards of the National Board of Fire Underwriters for design and construction of containers and pertinent equipment for handling LP-Gases.

Each LP-Gas installer must secure a license from the state fire marshal, paying $1 annually for it. He must also give a bond of $1500. In addition, installation fees are set as follows: On tanks of from 1-59 gals. capacity, $1; 60-120 gals., $2; 121-250 gals., $2.50; 251-400 gals., $3; 401 gals., and up, $5.

Teeth are put into the new law by authorizing the LP-Gas administration to require discontinuance of LP-Gas systems when not installed according to the regulations and by authorizing prosecution of individuals, firms and corporations which make installations which do not comply with the safety regulations.

Under the 1939 act the corporation commission adopted rules and regulations but was given no appropriation for employment of inspectors. Therefore enforcement was necessarily through voluntary cooperation of leaders of the industry. The corporation commission willingly relinquished its authority.

The recent legislature also levied a 1½-cent-per-gal. tax on special fuels, including LP-Gas. This is added to the special fuel tax of 4 cents per gal. adopted by the 1939 legislature, and is paid by the user of the fuel. This tax, however, which now totals 5½ cents per gal., is only levied for fuel used for generation of power to propel motor vehicles on the public highways." LP-Gas used by the U.S. Government or in farm tractors for agricultural purposes is not taxable.

◆ ◆

R. K. Vise Organizes New Company In Petersburg, Va.

Richard K. Vise has recently organized the Suburban Gas Co., Petersburg, Va., which will handle liquefied petroleum gas and appliances.

A 24-hour service will be maintained by the new company.

WANTED

Distributors for California

A few desirable territories now open handling several hundred bottled gas accounts for reputable, established company. Territories are already profitably developed. Practically no investment required. Storage and equipment on consignment. Prefer young, married man who likes the service business. Excellent opportunity for worthwhile profits for man and wife.

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FISHER TYPE 712 REGULATOR

FOR SINGLE DRUM APPLICATION

- *Die Cast Body
- *Capacity — 25 Cu. Ft. Per Hour or More
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Write for Prices

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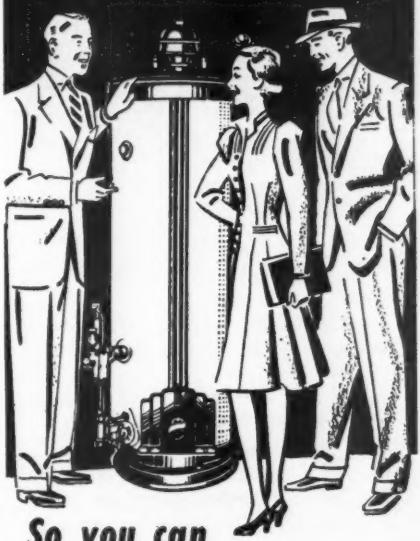
guarantees PERFORMANCE



So you can guarantee CUSTOMER SATISFACTION • • •

Your customers are entitled to all the conveniences Bottled Gas can afford. Hotstream Hot Water Service will build customer good will for your product.

There are Hotstream Heaters specially designed for safe, economical operation with Butane and Propane—in every size, for every requirement. Guaranteed 5 to 20 years.

For complete information, prices and catalog, write to Hotstream or, in the South, to these representatives:

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820 Carondelet St., New Orleans, La.
R. O. FOARD, JR., 205 Walton Bld., Atlanta, Ga.

THE HOTSTREAM HEATER COMPANY
8007 Grand Avenue • Cleveland, Ohio

ANSWERS

To Chapter I
The Bottled Gas Manual

Here are the answers to the questions on page 16 and which refer to problems in Chapter 1 of THE BOTTLED GAS MANUAL:

1. Propane is a chemical combination of hydrogen and carbon that can be used as a fuel gas and can be handled as a liquid.

2. Methane, ethane, propane.

3. Methylene, ethylene, propylene.

4. A. Propane will be available as long as petroleum and natural gas are produced.

B. It is possible to produce propane synthetically.

5. Dependability, Safety, Cleanliness, Flexibility, Speediness, Economy, Ultra-modern.

6. On a par.

7. A. Absence of scale.

B. Ease of accurately controlling its constant heat input.

8. A. Its intense heat is immediately available.

B. No delay in kindling or waiting for vaporization elements to heat.

9. Its narrow limits of inflammability.

10. Electricity, oil, wood, coal, gas.

◆ ◆

Texas LP-Gas Men Cooperate With Railroad Commission

Seventy-five representatives of the liquefied petroleum gas industry of Texas met with the State Railroad Commission in Austin on May 27-28 to present their views regarding regulations for handling and odorization of LP-Gases and specifications for the design and installation of equipment. The meeting was arranged by Clinton Owsley, director of the gas utilities division of the Commission, the members of which are Ernest O. Thompson, chairman; Jerry Sadler and Olin Culberson.

It was generally agreed that the Commission should exercise a considerable amount of control over the installation and filling of I. C. C. containers, in addition to its supervision over the design, construction and installation of Code vessels.

The opinions of the industry will be considered by the Commission in writing its rules and regulations.

◆ ◆

M. H. Nabors Is LP-Gas Sales Manager for Shell in Atlanta

M. H. Nabors is established at the Atlanta Division office of Shell Oil Co., Inc., in the William Oliver building, Atlanta, Ga. This branch was opened last August.

Mr. Nabors is manager of the lubricants and technical products department for the division and handles the sales of liquefied petroleum gas, lubricants and naphthas.

The company's marketing operations for the states of Georgia, Florida, Alabama, Mississippi, Louisiana and Texas are directed from this office.

◆ ◆

James W. Barber, 51 Years A Salesman, Dies

James W. Barber, oldest employe of the Ruud Manufacturing Co. and perhaps in point of continuous service, one of the oldest gas water heater salesmen in the industry, died in Pittsburgh, Pa., on April 1.

Mr. Barber joined the sales staff of his company in 1890 and for 41 years traveled the same territory—western Pennsylvania and east Ohio.

Your *L.P.G. REQUIREMENTS

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Distributors for

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- WHOLESALE MANUFACTURING AND MARKETING ONLY
  We'll never be your competitor.
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  Insures you AND your customers complete satisfaction.
- CONVENIENT SOURCES
  In Kansas, Oklahoma, Texas and Louisiana save you time and money.
- HIGH QUALITY FUELS
  Make maximum sales possible.

Your requirements given prompt attention.

WRITE OR WIRE FOR QUOTATIONS

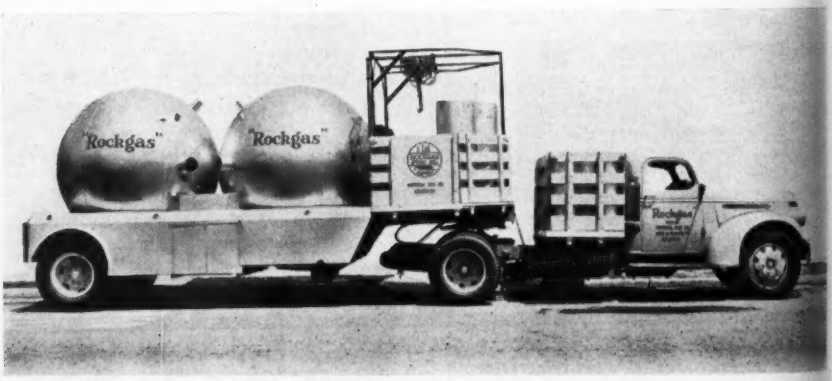
ANCHOR
PETROLEUM COMPANY
Atlas Life Bldg. Tulsa, Okla.

Portable LP-Gas Filling Plant Saves Cylinder Shipments

IN order to service its 11 bulk stations and its many distributors in California and Arizona more conveniently and more economically, Imperial Gas Co., of Los Angeles, has developed a special, bulk truck and portable filling plant. The use of this truck now makes it unnecessary for distributors to ship cylinders to the company plant at Huntington Park for refilling, thus effecting a considerable saving on tanks and equipment. Instead, the new truck hauls both "Rockgas" (propane and isobutane) and propane direct to the bulk plants and to the platforms of the distributors where their tanks are refilled. A. N. Kerr, president of the company, is the originator of the idea of the combination truck.

The truck—a 3½-ton G. M. C. tractor that operates on liquefied petroleum gas, and a Pike trailer—provides space for carrying a supply of cylinders as well as the two 88-in. spheres, each of which has a 1300-gal. capacity.

Combined capacity of the bulk truck is 2700 gals. Two spheres were used to permit hauling of both propane and "Rockgas" to meet distributor's requirements. The spheres are of ½-in. steel and designed to withstand a 250-lb. working pressure. If cylinders had been used, 1-in. steel would have been required. Because of their spherical shape, a saving of



Imperial Gas Co., Los Angeles, has built this special bulk truck and portable filling plant to permit filling dealers' cylinders on their own platforms, thus eliminating shipment costs and delays.

Sell Speed

with a

SPARTAN

A water heater built for today's requirements: speed in recovery (55.9 gals. per hour)—efficient—noiseless—attractive—safe. Every dealer needs the SPARTAN to make his line complete. Write for details.

A.G.A. Approved

SPARTAN Automatic Storage

Continental WATER HEATER CO. LTD.

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McNAMAR Tanks

- TRUCK TANKS
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BOILER AND TANK COMPANY

Tulsa, Oklahoma — Salem, Illinois

HOSE *for Unloading Butane-Propane Gas*

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The completely satisfactory service this hose provides is proof of GOODALL leadership in meeting the requirements of this fast-growing field. Light in weight and extremely flexible . . . less bulk when coiled on truck. Extra strong construction insures wide margin of safety. No wires other than static strand. Sizes ½" to 3", inclusive.

Goodall Rubber Co., Inc.
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GOODALL RUBBER CO., Inc.
4 South 36th St., Philadelphia, Pa.

Send full information on GOODALL "Sentinel" Brand Butane-Propane Hose.

Name.....

Company.....

Address.....

1750 lbs. in the weight of the containers was effected.

Because of the use of spherical tanks on a low trailer, the center of gravity of the truck is low, assuring safety on the highway. Rear wheels have an overall width of 8 ft. which, with the low center of gravity, eliminates any tendency to overturn.

Truck Has Complete Equipment

The truck is equipped with three platform scales, a Smith pump, a meter and a compressor, providing complete equipment for filling either cylinders or storage tanks. Six cylinders can be filled at the same time.

If desired, the tractor may be detached and used separately for hauling tanks to distributors or for hauling cylinders to the Huntington Beach plant for retesting or repair.

This is a special truck built to meet a special service, and that accounts for its unique design.

Pontotoc, Miss., Court House Serviced by Whitworth Co.

J. H. Whitworth Butane Gas Co. Inc., Pontotoc, Miss., has just completed the installation of a 19 section butane gas-fired boiler in the county court house in Pontotoc. The heat input is practically 2,000,000 B.t.u.'s per hour. (Photo on this page.)

Mr. Whitworth says that he has made about a dozen school installations. In the schools, where there is a heavy B.t.u. pull, he sometimes uses two underground tanks—one of 1000 gals. and the other of 500-gals. capacity, which are tied together. High pressure lines run to the buildings, where they are split and equipped with as many as four large regulators.

These installations, says Mr. Whitworth, are very satisfactory if sufficient storage capacity and regulators are used, and they are properly installed.

Domestic installations of all types are made by the company and a full line of LP-Gas appliances is carried.

Delivery truck of J. H. Whitworth Butane Gas Co., Pontotoc, Miss., and (in background) the county court house in which has been installed a 19-section butane gas boiler.

ARMY

DEFENSE CAMPS

Dealers may participate in the profit from jobs similar to these:

U. S. Navy: — Central Plant, San Clemente Island

U. S. Migratory Service: — Central Plant, Sommerton, Ariz.

Consolidated Aircraft Corporation:— Stand-by

Muroc Dry Lake Bombing Center:—Central Plant

Northrop Aircraft Corporation:— Stand-by

City of Los Angeles:—Truck Service Station

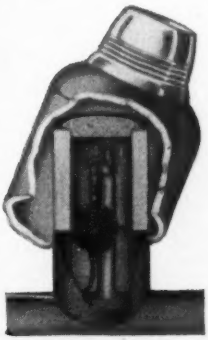
You may call on us to engineer or install any Central Plant, Stand-by or Service Station dispensing system FOR YOU, or we will ENGINEER, INSTALL, and BID the job direct, paying you a profit, plus the future gas load.

BUTANE LTD.

Consulting & Manufacturing Engineers
2146 W. Washington Blvd., Los Angeles

HOT

Weather Is Here



For better balanced performance—sell Pioneer—the *only insulated butane system!* All Pioneer Plants conform to ASME code. Write for details of the easy-to-sell, 5-year-guaranteed Pioneer line.

EWING BUTANE GAS CO.

DALLAS, TEXAS

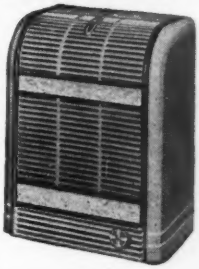
ARMSTRONG HEATERS

The 4-Star Line

★ **QUALITY**
★ **EYE APPEAL**
★ **LOW PRICE**
★ **REDUCED SERVICE CALLS**

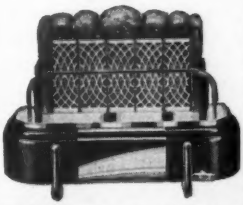
Four reasons why dealers are finding Armstrong Heaters such big sellers and such good profit makers.

918-B Radiant Circulator



A real beauty in design and finish. An exclusive Armstrong feature is a clay heating element that produces both radiant and circulating heat. No gas odors. Finished in rich brown porcelain enamel and non-tarnishable chrome. 3 sizes, 14,000, 18,000 and 28,000 B.T.U. A.G.A. approval.

795-B Radiant Heater



A popular seller. Body finished in brown vitreous enamel with heavy chrome hearth, front panel, dress guards and tubular legs. Glazed backwall is light tan shaded with brown. Light faced radiants harmonize with body. 2 sizes, 20,000 and 24,000 B.T.U. A.G.A. approval.

11 DIFFERENT STYLES

In the complete Armstrong line, there are 11 styles especially designed for liquefied petroleum gases—every one a big value—sized from 12,000 to 30,000 B.T.U. Finishes harmonize with any home or office surroundings.

Send for illustrated literature and attractive dealer discounts. Address Dept. BP.

ARMSTRONG PRODUCTS CORP.

Quality Appliances Since 1899
HUNTINGTON, W. VA.

Benkelman, Neb., City Council Signs LP-Gas Plant Contract

The city council of Benkelman, Neb., recently signed a contract with the Superior Marketing Co., for the construction of a liquefied petroleum gas plant, along with the distributing system, for a sum of $20,647.

There were no other bidders and the contract was well under the engineer's estimate which was $22,000. A representative from the company said that the plant would be completed within 100 working days following the city's order to start which will be delayed a few days due to legal requirements.

◆ ◆

Dallas Tank & Welding Co., Inc. Will Distribute New Lines

Dallas Tank & Welding Co., Inc., of which W. W. Banks is president, has recently added a line of gas ranges, propane cylinders and carburetors to the tank products the company is selling to the liquefied petroleum gas industry.

The ranges, manufactured exclusively for them under the trade name of Tru-Flame are sold in three models under the slogan "Use Tru-Flame with Butane."

Ben S. Foss, Jr., of the company, has been placed in charge of the sale of the Tru-Flame line. (See photo below.) New display quarters have been constructed by the company to house the ranges. Exclusive distributorship will be given to those handling the Tru-Flame line.

Scaife cylinders will be distributed by the company in Texas and New Mexico, in which territory the company has exclusive distributorship, according to Mr. Banks.

Dallas Tank & Welding Co. has also been appointed as a representative of the American Liquid Gas Corp., handling the new "Algas Multi-Jet" carburetor, and Mr. Foss has also been placed in charge of these two lines.

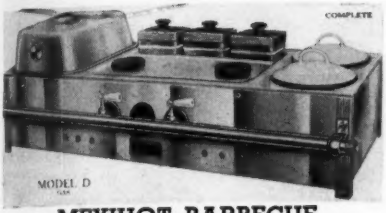
◆ ◆

James Burnsted To Handle Skelgas in Chetek, Wis.

James Burnsted recently opened to the public a large new display of household appliances in the Burnham building, Chetek, Wis. The display features Skelgas products.

Ben S. Foss, Jr., Dallas Tank & Welding Co., demonstrates a new line of ranges to Tom Ruland, of Farmer's Butane Gas Co., Houston.

Fast Sales!



MEXIHOT BARBECUE SANDWICH MACHINES

Thousands of installations in drug stores, tap rooms, roadside stands, cafes and other places that serve lunches have brought big repeat business. Low price means quick sale. Above model $38.50, other sizes in proportion. Write for distributorship at once.

Department B12

DICKERSON MANUFACTURING CO.
Springfield, Missouri

---

4 NEW OUTSTANDING FEATURES IMPROVE THE PROVED B-60 GAS VALVE

1. **COMPACT, TAMPER-PROOF COVER** — Securely held . . . No external gas ways
2. **INTEGRAL PILOT VALVE ASSEMBLY**—Accessible . . . Easily tightened . . . Rigid vent connection
3. **NEW, STRONGER VALVE BODIES** — Hi-Tensile iron . . . Increased seating pressure . . . Maximum capacities
4. **MAIN LINE STRAINER**

All B-60 Gas Valves now furnished with heavy-duty pilot generator for use with liquefied petroleum gases.

GENERAL CONTROLS
450 E. Ohio St. Chicago, Ill.
267 5th Avenue New York City
Distributors and Stocks in All Principal Cities

WEDGEWOOD Ranges

are especially built for BOTTLED GAS

The perfect combination for rural homes—

Wedgewood's BOTTLED GAS RANGE WITH WOOD OR COAL FIREBOX

WEDGEWOOD

THE MODERN RANGE

James Graham Mfg. Co.
Los Angeles, California • San Francisco, Portland, Oregon • Newark, Oregon

R. M. Conner Is Selected For Walton Clark Medal

For more than a century, The Franklin Institute in Philadelphia has been singling out workers in science and industry whose contributions to public welfare merit special commendation. At the annual award of medals and certificates May 21, the Walton Clark Medal was presented to Raymond Mower Conner, director of the Gas Appliance Testing Laboratory of the American Gas Association in Cleveland.

R. M. CONNER

This medal is awarded to the author of the most notable advance in knowledge or improvement in apparatus; in method concerning the science and art of gas manufacture and its distribution or utilization in the production of heat, illumination, or power.

Mr. Conner has been director of the Gas Appliance Testing Laboratory since its foundation in 1925 and under his direction much notable work has been accomplished. Three primary points of view have been kept in mind in this work. They cover minimum requirements for satisfactory performance, substantial and durable construction, and safe operation.

◆ ◆

Parkhill-Wade, Los Angeles, Will Handle Scaife Cylinders

Gilbert Woodill, in charge of equipment sales for Parkhill-Wade, Los Angeles, announces that his firm is now distributor of Scaife LP-Gas cylinders. The company will sell to the dealers in California in all territory south of Marysville, with the exception of the coast counties of Sonoma and Marin.

The first carload of Scaife cylinders have been ordered and are due to arrive in California the latter part of July. Cylinders will be stocked at the Fresno and Los Angeles offices. They will be sold on an f.o.b. basis at both offices.

Mr. Woodill states that the addition of Scaife cylinders to their line of LP-Gas equipment follows the Parkhill-Wade policy of adding nationally known lines to their stock.

◆ ◆

S. C. Vanier Northwest Manager for General Water Heater Corp.

S. C. Vanier is now district manager in the Northwest for the General Water Heater Corp. Main offices for the territory are at 899 Bryant St., San Francisco. Before taking over his new duties as district manager, Mr. Vanier was employed in sales work at the factory in Burbank, Calif.

At present an organization of eight employes is working with Mr. Vanier out of the San Francisco office. Warehouse stocks are maintained in California and Oregon for immediate delivery to dealers throughout the Northwest.

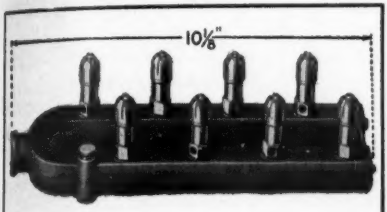
A complete line of LP-Gas water heaters is now available in the same states. The General line of water heaters is now A.G.A. approved.

◆ ◆

Imperial Gas Co. Moves Into New Los Angeles Quarters

The Imperial Gas Co., distributor of "Rockgas" in the West, has moved into a new Los Angeles location to obtain better office facilities and customer parking space, according to A. N. Kerr, president. The new address is 3625 South Flower St.

The company has recently installed a new 2000-gal. propane bulk plant in Brookdale, Calif., for Irwin and Smith.



No. C. L-80 Burner

BARBER APPLIANCE BURNERS

For every appliance, there is a Barber Burner unit with proper jets, and correctly designed, to suit the combustion requirements of Butane or Propane Gas, and to fit the appliance itself. Eliminate servicing and back firing. Every distributor of these fuels, as well as appliance builders, can best serve their customers by recommending the use of genuine Barber Burners. Submit your burner problems to us. Write for Catalog showing complete Barber line.

The Barber Gas Burner Co.

3704 Superior Ave. Cleveland, Ohio

Profit Building
LPG HEATERS

LPG Dealers find real profit in BRILLIANT FIRE sales because the product is time-tested, trustworthy. Geared for economy operation and negligible servicing. These popular heat-makers are offered in a variety of styles for every home need.

Write for Catalog

Brilliant Fire **GAS HEATERS**

THE OHIO FOUNDRY & MANUFACTURING CO.

QUALITY HEATING EQUIPMENT SINCE 1846

STEUBENVILLE, OHIO

Increase Both!
CUSTOMER SATISFACTION and YOUR LP-GAS LOAD

• WATCH your business grow when you sell S. Blickman food service equipment, specially designed for use with Butane-Propane Gas. All types of food serving establishments — diners — restaurants — roadhouses — as well as churches and other institutions — are large potential users. Durable S. Blickman equipment will make them your satisfied customers for years. Sell this large market. Send now for catalogs showing our complete line of nationally known LP-Gas sales builders.

Coffee Urn Battery of Stainless Steel.

S. BLICKMAN, INC.

Manufacturers of Food Service Equipment

2107 Gregory Ave. • WEEHAWKEN, N. J.

We would like to increase our LPG sales with your food-service equipment. Please send catalogs showing complete line including Coffee Urns, Steam Tables, Luncheonettes, etc.

Name.....

Address.....

City..... State.....

A. G. A. E. M. Holds Annual Convention in Los Angeles

The sixth annual convention of the Association of Gas Appliance and Equipment Manufacturers was held at the Ambassador Hotel, Los Angeles, Calif., June 3-5.

The general sessions were conducted Wednesday, June 4, with W. E. Derwent, president, in the chair. All current officers were re-elected for the fiscal year beginning Oct. 1, 1941. The officers are: W. E. Derwent, president; W. F. Rockwell, first vice president; Lyle C. Harvey, second vice president, and John A. Fry, treasurer.

The program committee of the convention, under the chairmanship of R. G. Logue, Ward Heater Co., Los Angeles, arranged many events of special interest to Eastern delegates, among them a trip to Santa Catalina island. This was sponsored by the Southern California Gas Co. and the Southern Counties Gas Co. in collaboration with the Association.

◆ ◆

Southern Section Delegates Charter Private Plane

Claude Rogers, of McGehee, Ark., representative of the Tappan Stove Co., was met at the McGehee airport, May 27, by B. T. Harris, owner of the Butane Gas Co., Inc., Little Rock, Ark., and Thad McCollum, butane gas dealer of Stuttgart, Ark., to fly to the meeting of the Southern Section, L.P.G.A., at New Orleans, with J. O. Dockery, of Stuttgart, son of J. P. Dockery, owner of the Dockson Gas Co., Jackson, Miss. (Photo below.)

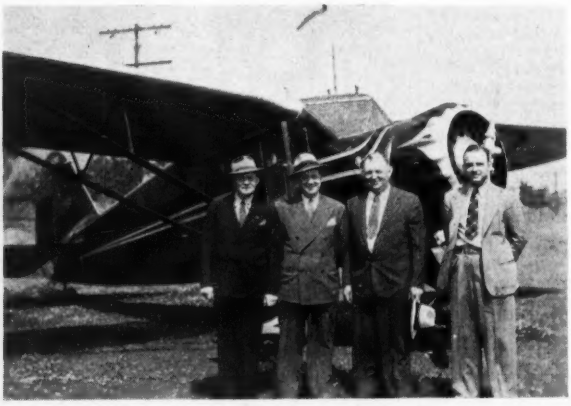
Mr. Dockery's plane is a Stinson SR-5. Mr. McCollum is the originator and copyright owner of the National Duck Calling Contest, and is also winner of the 1940 Tappan District Managers Award for being the outstanding Tappan butane gas range dealer in Arkansas.

◆ ◆

Pittsburg Water Heater Co. Secures Larger Dallas Quarters

The Pittsburg Water Heater Co., Dallas, Texas, headed by C. H. Lacey, distributors of butane gas systems and equipment, has occupied new and larger quarters at 2820 Main St. The company formerly was housed at 1922 Main street.

Drive-in service facilities and loading docks have been provided at the new location, and the service department and warehouse will likewise find space there.



Thad McCollum, Claude Rogers, B. T. Harris, and J. O. Dockery at the McGehee, Ark., airport, and the plane that carried them to the Southern Section, L.P.G.A. meeting in New Orleans in May.

MOORE'S
COMBINATION RANGES
for SUMMER or WINTER FUEL

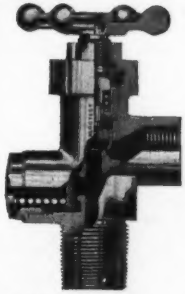
MONTICELLO

MOORE'S COMBINATION FEATURE:

- Coal or oil and LP-Gas
- 2 or 4 coal or oil covers
- Full oven size on all fuels
- 4 gas top burners
- No dampers to operate
- No baffles to handle

THE MOORE CORPORATION
Quality Since 1857 JOLIET, ILLINOIS

Control
PROPANE-BUTANE CYLINDERS THIS POSITIVE WAY—



KEROTEST PROPANE-BUTANE CYLINDER VALVES *are:*

- **DIAPHRAGM PACKLESS**—require least maintenance.
- **SAFE**—automatic safety-vent releases *only* excess pressures.

Write for Catalog

KEROTEST
KEROTEST MANUFACTURING COMPANY
PITTSBURGH PA

Eclipse Regulator

Protect every customer

with a meter or regulator equipped with a Vulcan Non-Leather Diaphragm. Permanent flexibility insures safe, dependable, accurate performance. Vulcan Diaphragms do not change shape or size.

Vulcan Diaphragms are the real answer to many LPG meter and regulator problems.

Write for Details

Vulcan Proofing Company
First Avenue and Fifty-eighth Street
Brooklyn, New York

VULCAN
NON-LEATHER
LPG
METER and REGULATOR
DIAPHRAGMS

F. L. Fairchild and H. Ward Cheeseman, Sprague Meter Co.

Sprague Meter Co. Officials Return From South America

F. L. Fairchild, president of the Sprague Meter Co., Bridgeport, Conn., and H. Ward Cheeseman, East Coast representative, recently returned from an extensive tour of South America where they contacted their customers and made a survey of the general situation from a business standpoint.

The trip covered some 19,000 miles and included seven countries, namely, Brazil, Venezuela, Colombia, Ecuador, Peru, Argentina, and Chile. They also included in their itinerary such places as Cuba, Jamaica, Panama and Trinidad, and the entire route was covered by way of Pan American Airways.

Miss E. L. Ballou, supervisor of sales, Sprague Meter Co., and E. R. Meade, former vice president of the Standard Oil Company, Buenos Aires, Argentian, S. A., have lately been elected to the company's directorate.

Butane Equipment Co., Inc. Will Handle Line of Ranges

Butane Equipment Co., Inc., of Dallas, Texas, through James Jackson, president, has announced that it will handle for the butane industry a line of LP-Gas ranges which will be sold under the trademark of the Utility Butane Range. This name was selected to tie in with the Utility Butane Gas Systems being manufactured by the company.

The ranges come in six models and will be distributed by the company throughout their trade area. A separate warehouse has been constructed on the property of the company to house the ranges.

◆ ◆

National Butane Gas Co. Issues Pocket Manual

A pocket manual for butane gas dealers, salesmen and servicemen has been issued by the National Butane Gas Co., Memphis, Tenn. It contains 41 pages of tables, charts and instructions for installing and servicing butane systems, with important excerpts from N.B.F.U. Pamphlet No. 58.

While issued primarily for dealers handling National Butane Gas Co. systems, this manual has much of general value and interest. Company dealers are each given two copies without charge. Additional copies to company dealers and to others are sold at 25 cents per copy.

◆ ◆

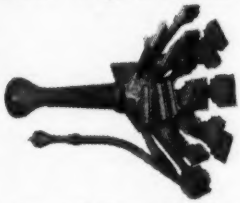
H. D. Hooker, Springdale, Ark. Buys Out Steve Miller

Mr. and Mrs. H. D. Hooker recently purchased the interest of Steve Miller in the Butane Service Co., Springdale, Ark. The new name of the business is "Hooker's Butane Appliance Company."

Mr. Miller will devote his attention to the sale and servicing of butane gas systems.

F & E

20-S Straight-Shot L.P.G. Vapor Burners

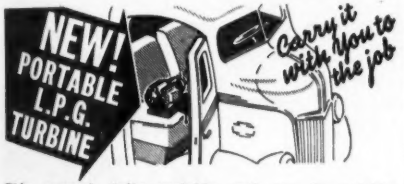


Pat. and Patent Pending
For Water Boilers, Dehydrators, Cotton Driers

For full details of our complete line of L.P.G. Burners and Torches write to

F & E Mfg. Co.

P. O. Box D Centerville, Calif.

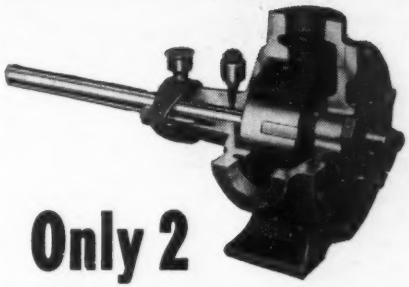


This compact, fully portable unit can be quickly moved from truck to truck . . . enabling you to make speedier tank-truck deliveries.
An ECONOMICAL turbine pump that CUTS COSTS . . . withstands the ROUGHEST USAGE . . . fills 100 lb. cylinder in av. of SIX MINUTES . . . switch and motor EXPLOSION PROOF . . . WIDE PRESSURE RANGE, up to 80 lbs. . . . optional CARRYING HANDLE . . . LOW cost . . . HIGH performance.
WRITE TODAY FOR FURTHER INFORMATION

Sing. ph. 110 v. ¾ H.P. Explosion Proof Motor

THE DAYTON-DOWD CO.
QUINCY ILLINOIS

STRIPPED FOR ACTION



Only 2 MOVING PARTS

Inside and out, Viking is built for action. There are no intricate mechanisms, no power or efficiency wasting gadgets. Every Viking Butane-Propane Pump, regardless of size or style, employs the same simple "2 MOVING PARTS" principle . . . the famous principle that reduces pump wear, cuts repair and replacement costs in half, makes servicing a quick, inexpensive job. Bulletin 2301-40 may be the answer to your butane-propane pumping problem. Write today for a free, illustrated copy.

VIKING PUMP COMPANY
CEDAR FALLS, IOWA

Carl E. Golden Is Now With L. C. Roney, Inc., Los Angeles

Carl E. Golden is now assistant general manager of L. C. Roney, Inc., of Los Angeles. Mr. Golden joined the Roney organization on June 1, making the Los Angeles factory of the company his central office.

C. E. GOLDEN

Until recently Mr. Golden has been in the San Francisco office of the Standard Oil Co. of California. In that position he gained a wide knowledge of the LP-Gas industry, having had charge of engineering work connected with the sale of butane and propane. As a member of the Specifications Committee of the A.G.A. he took an important part in the development of rules and regulations for the LP-Gas industry.

A graduate chemical engineer, Mr. Golden attended Colorado College, Colorado State, and the University of Idaho. For several years he was with the Great Western Sugar Co. engaged in chemical and technical work.

◆ ◆

Cinnabar Furnace Fired With Butane Faces Long Campaign

With sufficient ore blocked out for an indicated annual output of 1000 flasks of quicksilver for at least three years, the Cinnabar Mountain Mining Co. is mining cinnabar more than 40 ft. wide in the surface workings of the Reward property near Mina, Nev.

The rotary furnace fired with butane gas, is reported to be treating 50 tons of cinnabar daily.

Use of gas is stated to not only result in high-fuel efficiency, but the mercury recovered is free of soot and carbon by-products usually present when oil is burned. Special equipment has been provided to fire the roaster.

Dallas H. Gray of Oakland, Calif., is president of the company.

◆ ◆

W. J. Schoenberger Co. Issues New Catalog for the Trade

A complete, comprehensive catalog, No. 41, has recently been issued by the W. J. Schoenberger Co., Cleveland, Ohio, covering its full line of valves, fittings, burners, lighters and accessories for gas appliances.

Special sections of the catalog are devoted to: Lighter parts and accessories; valves for range, space heater, water heater, boiler and furnace burner; shut-off and pilot valves; burner fittings; orifice plugs and hoods; lighter and push-button valves; copper connectors and parts; flared shut-off valves and miscellaneous; "Tru-Seal," compression coupling and S.A.E. tube fittings; and handles.

Also given are convenient tables of decimal equivalent and orifice capacity tables, and measurement charts.

◆ ◆

J. P. Quintard Will Manage Appliance Division for Crook Co.

J. P. Quintard is now manager of the appliance department for Crook Co., of Los Angeles, distributors of LP-Gas appliances to dealers throughout Southern California. The organization has been distributing butane and propane in this territory for several years.

The development of a complete domestic appliance line for Crook Co. has taken place under the supervision of Mr. Quintard who, in the past, was associated with the Peninsula Burner and Oil Co., having been manager of their San Francisco branch.

PEERLESS
FLOOR FURNACES

have Public Acceptance
... and are approved by

The American Gas Association
for use on
Liquefied Petroleum Gas
Five Models
With Baso Safety Pilot

Automatic Thermostatic Controls available.
Write today for your New Catalog and Prices.

PEERLESS MANUFACTURING CORP.
14th and Ormsby Streets LOUISVILLE, KY.

For Safety
and Economy

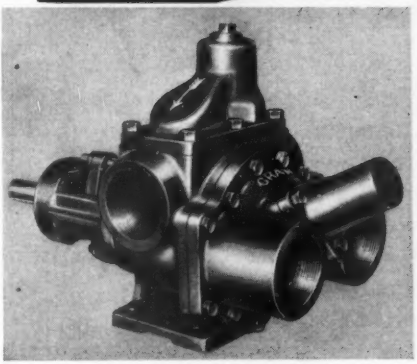
ETHYL MERCAPTAN

—Purified—

The ACCEPTED
standard
odorant
for liquefied
petroleum
gases.

MALLINCKRODT CHEMICAL WORKS
ST. LOUIS NEW YORK

"It's a Natural FOR PUMPING BUTANE"



The action of a Granco Butane Pump is just like that of a lemon squeezer, moving the liquid evenly and smoothly with minimum turbulence and without pulsation. No other pump is like it—positive and quiet with long life. No wonder enthusiastic users say, "IT'S A NATURAL FOR BUTANE." Write for folder and complete information.

The EXCLUSIVE GRANCO PRINCIPLE

Rotary knuckle joint pivoted in housing—no blades, cams, gears, springs, scoops, valves, rings nor washers. No metallic contact between rotor and housing.

Granco PUMPS

Manufactured by
GRANBERG EQUIPMENT, INC.
1308 - 67th STREET
OAKLAND, CALIFORNIA
AGENTS IN PRINCIPAL CITIES

COMPLETE FACILITIES

BUTANE or PROPANE

Vitally important to every retail marketer of these products, is a dependable and reliable source of supply. Such assurance is yours when you buy Philgas Butane or Propane. Without qualification, Philgas has the most complete production, storage and shipping facilities in the industry. Philgas service gives you high-quality products produced according to rigid specifications plus deliveries when, where, and as you want them.

Philgas
DEPARTMENT

PHILLIPS PETROLEUM COMPANY
GENERAL MOTORS BUILDING
DETROIT, MICHIGAN

NEW YORK | MILWAUKEE
PHILADELPHIA | ST. LOUIS
CHICAGO | AMARILLO
BARTLESVILLE, OKLA.

THE NATION'S LARGEST MARKETER OF LIQUEFIED PETROLEUM GASES

Butane-Propane *News* Appoints Glenn Royer Cleveland Manager

Glenn Royer has been appointed Cleveland, Ohio, manager for BUTANE-PROPANE *News* with offices at 2232 Adeline St., Lakewood. He will cover a territory including Ohio, Western New York, Western Pennsylvania, Michigan and Indiana.

GLENN ROYER

Mr. Royer has been associated with newspapers and trade publications in the Cleveland area for a number of years. Among these were the *Cleveland Plain Dealer* and *Institutions*.

◆ ◆

L. T. Greer, Butane Gas Corp., Fayetteville, Ark., Dies

L. T. Greer, manager of the Butane Gas Corp., Fayetteville, Ark., died May 24 as the result of burns sustained the same day. He was 51 years of age and has long been identified with the LP-Gas industry.

Readers of BUTANE-PROPANE *News* will recall the story in the May issue (page 26), written by Mr. Greer's daughter, Lovine, which told of his part in developing a market for butane among the broiler chicken raisers of northwest Arkansas.

◆ ◆

Propane Gas Service Co. Locates in San Fernando, Calif.

The Propane Gas Service Co., was recently established in San Fernando, Calif.

John S. Reynard, and Theodore F. Harms are managers of the company. The new plant is at 407 Alexander St.

CROWN GAS RANGES for LIQUEFIED GAS

You Won't Lose Sales When You Feature CROWN. There is a Crown Range in every price class . . . all sturdily and honestly built . . . with over 54 years of stove building experience behind them. Write for Catalog and prices.

CROWN STOVE WORKS
4631 W. 12th PLACE, CHICAGO
Originators of BUFFET and DIVIDED-TOP GAS RANGES

VISION!!

Today's men of vision are tomorrow's outstanding leaders. This is true in every field of endeavor, and the Butane Gas Industry is no exception. Many of the Butane Gas Industry's leaders of tomorrow are today turning to the patented

NATIONAL Thermo-Syphon SYSTEM

The system which pays dividends to both the Dealer and the user.

National Butane Gas Co.
MEMPHIS, TENNESSEE

WARREN . . .
Your Dependable And Co-operative Source of Supply
FOR
BUTANE and PROPANE

Constantly tested and controlled by expert chemists, Warren's Butane and Propane are of the finest quality that the natural gasoline industry can make; manufactured in 18 modern, scientifically designed Warren plants in 7 states.

We are manufacturers and wholesalers only—partners of our customers, not competitors. Our large fleet of tank cars, our storage and loading facilities for customers' trucks insure quick, efficient service and speedy delivery from several strategically located terminals.

Write or Wire

WARREN PETROLEUM CORP.
Manufacturers and Wholesalers
Tulsa, Okla.

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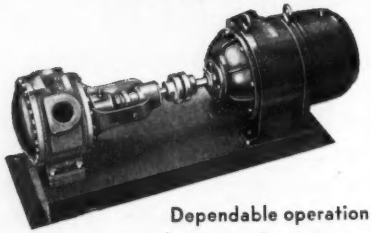

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Smith Precision Products Co.
1135 Mission St. South Pasadena, Calif.

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FLASH FOR L.P.G. DEALERS—$25.00 SET of tools—30 day special, $17.50. The L.P. Gas Tool Kit, "The answer to a service man's prayer." A complete set of tools, everything that is needed to put in a real job. Make your own orifices on the job to fit the job. This tool kit will save your service dept. $$$$$$$ HERE'S WHAT YOU GET: Metal Tool Box, Safety Orifice Anvil, Hand Piece (Reamer), Adaptor Reamer, Small Reamer, Adaptor Driving Tool, Adaptor Crimping Tool, Set Gauging Drills (12 sizes between No. 40 to No. 72) with kit, Service Man's Ratchet Wrench (for orifices), 50 Orifices (fit 40 different ranges), 50 Adaptors (to make old orifices to fit any job), 12" Water Manometer. Terms: Cash or ½ down, bal. C.O.D. F.O.B. L. P. G. TECHNICAL SUPPLY CO., Capital Hill Station, P.O. Box 7115, Denver, Colorado. Satisfaction guaranteed or money refunded.

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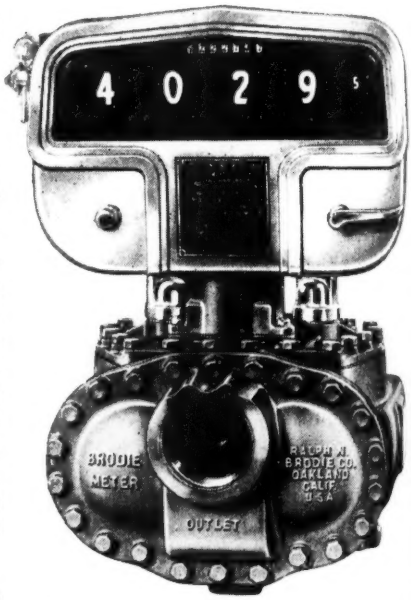

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